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An Exploratory Investigation of the Use of Humor as a Coping Strategy for Dealing with Stress among Paramedics

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AN EXPLORATORY INVESTIGATION OF THE USE OF HUMOR AS A COPING STRATEGY FOR DEALING WITH STRESS AMONG PARAMEDICS

by

Lisa Rosenberg

A Dissertation Submitted to the Faculty of the Graduate School of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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VITA

The author, Lisa Rosenberg, is the daughter of Albert and Ruth Katz. She was born December 15, 1953 in Chicago, Illinois.

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CHAPTER I

INTRODUCTION

Humor is an old therapeutic concept, given an early formalized endorsement in the Bible - "A merry heart doeth good like a medicine" (Proverb 17:22). Since that ancient citation, philosophers and psychologists have, over the centuries, engaged in discourse with respect to the nature and functions of humor. Thomas Hobbes suggested the principle of superiority was central to the humor experience. In Leviathan (1651), Hobbes defined laughter as "...nothing else but sudden glory arising from a sudden conception of some eminency in ourselves, by comparison with the infirmity of others, or with our own formerly." Laughter is, thus, based on self-congratulation and personal triumph.

Freud (1959) posited that humor functions as a release mechanism allowing for a savings of psychic energy and a maintenance of appropriate defenses. For Freud the pleasure derived from the comic, wit, and humor arise from the economy in the expenditure of thought, inhibition, and feeling. Those adopting the psychoanalytic viewpoint regard humor expressions as a basic adjustment device having a positive value to the individual. More recently, Harvey
Mindness (1971) speaks of the "humorous attitude" as a method of liberation that can free us to look at ourselves and the human condition within a wider perspective. From this perspective, humor becomes a frame of mind, a self-immunization penetrating our values, attitudes, and character. The above conceptions represent only a few of the many theories directed at explaining the nature and functions of humor. A common thread among many of these views suggests that there is an overall positive effect of humor on the psychological and emotional functioning of the individual. Also inherent in many of these theoretical discussions (i.e., Freud) is the fluid nature of humor's operation as a coping mechanism.

Thus, the nature of humor has a broad, richly developed conceptual background. Yet, to date, these fertile grounds for empirical study have not been systematically explored. Humor, similar to other psychological constructs, presents certain difficulties experimentally in its definition and measurement. Also, due to individual differences in defensive coping styles, not all people use humor as a weapon in their coping arsenal. However, many reportedly do. The effect of humor as a moderator of physical illness reached public awareness with the advent of Norman Cousin's restoration to health after suffering from a painful, collagen disorder (Cousins, 1979). His autobiographical account of self-imposed humor therapy
and his subsequent recovery brought humor and the power of laughter under increasing scrutiny by scientists and other professionals. Humor has been found to have demonstrable exercise effects on several body systems (musculoskeletal, cardiovascular, respiratory) as well as stimulating the production of catecholamines, immunoglobulins, and endorphines (Stokes, 1988, Robinson, 1977, Moore, 1985, and Dillon, Minchoff, and Baker, 1985–86). Applications of the findings from "humor" studies cover a broad spectrum from primary health promotion to the healing process and palliation (Robinson, 1988, Stokes, 1988, Ljundahl, 1989, Moody, 1978, and Fry, 1971). Research aimed at studying the physical effects of using one's sense of humor is both dramatic and timely. It, in effect, gives some control and responsibility back to the individual regarding their state of wellness. Our present society and the "baby boom" generation in particular, appears receptive to this type of information related to the development of self and open to its application.

No less important, yet having received less attention from the research establishment, is the use of humor as a coping strategy in dealing with psychological stress. A number of reasons may account for this. One, is that the possibility of humor having positive psychological effects is not as easily documented or dramatic as the demonstration of the beneficial physical effects. In fact, the first
notion seems so wedded to common sense that any research to verify it might appear superfluous. Secondly, humor is only one of a number of simultaneous coping strategies we may employ when faced with a stressful situation. Its use is spontaneous, without conscious effort. Isolating its effects toward general emotional adjustment from other psychological mechanisms may thus prove complex. Third, it is more difficult to quantify psychological stress than the physical, behavioral effects of illness. Natural barriers to the measurement of both one's sense of humor and psychological stress and control over experimental parameters make the study of humor as a psychological coping strategy a difficult prospect. Yet, several studies have been produced that focus on the psychological and emotional impact of humor use. Most current research in this area is aimed towards clarifying the relationship between one's sense of humor and its effect on stress moderation. Dixon (1980) proposed that humor is a beneficial factor in helping people cope with stress. The positive effects are a result of cognitive shifts and the subsequent changes in affective quality. Safranek and Schill (1982) conducted research to determine whether two aspects of humor, use and appreciation, help moderate the effects of life stress. The overall results of their multiple regression analyses indicated that humor, at least by itself, did not moderate the effects of life stress. They suggested that humor may
be effective in coping with some situations, but their focus on life stress in general yielded no significant results. In a slightly more focused study, Schill and O'Loughlin (1984) attempted to determine whether humor preference was related to how well one copes with stressful life events. Their results suggest that preference for sexual humor and coping with stress are positively related for men but not for women.

A more comprehensive study of the possible stress moderating effects of humor was conducted by Martin and Lefcourt (1983). In three separate studies, it was hypothesized that one's sense of humor can reduce the negative impact of stressful life experiences. These studies made use of different measures of a subject's sense of humor, including self-report and behavioral assessments, under non-stress and mildly stressful situations. Multiple regression analyses indicated that five of the six humor measures produced a significant moderating effect on the relation between negative life events and mood disturbance. Subjects with low humor scores obtained higher correlations between these two variables than did those with high humor scores. These results provide some evidence in support of the notion of the stress buffering role of humor.

These studies, some of which suggest in a general way the beneficial psychological effects of humor, provide a conceptual bridge to the more specific investigations of
humor in highly stressful, field situations. For example, there is much anecdotal evidence to stimulate further study on humor use in the areas of emergency and critical care medicine. It has been noted (Mindess, 1985) that those health care professionals practicing critical care medicine can use and develop a somewhat different sense of humor than that shared by the general public. It appears that this change takes place as a result of these individuals attempting to cope with high impact, anxiety-producing situations. Experts in the field of critical care medicine have long recognized that their "sick" sense of humor is an important stress buffer. These experts have reported that this type of humor helps block out the excessive effects of being on the front line of uncensored pain, suffering, and death. What may appear as brutal insensitivity (i.e., the reference to children in a burn unit as "crispy critters" or to certain patients in an emergency room as GOMERS - Get Out Of My Emergency Room), is perhaps a blunt attempt to distance oneself emotionally from the existential horrors inherent in illness (i.e., debilitation and death, loss of function, fear of not being, the unknown). If one were not able to employ such distancing tactics, emotions may indeed interfere with the effective functioning required in critical situations. Humor under these circumstances may selectively prepare one to deal not only with the situation at hand but with similar encounters in the future without
destroying whatever compassion for humanity an individual may possess.

Critical care health specialists are not the only group which anecdotally report using humor to cope with the stress inherent in their job. Those in both the military and law enforcement report the development of a brand of humor specific to the stress of their particular experience. These occupational areas all seem to share a grim and very real contact with the exigencies of life and many individuals within these high stress occupational groups report using humor to buffer some of the stress that they face daily. Carrying this point to the extreme, it has been documented by Victor Frankl (1959) that humor was employed in the most dire of human circumstances, by the Nazi concentration camp victims, so as to lessen the psychological impact of their suffering. Frankl states, "It is well known that humor, more than anything else in the human make-up, can afford an aloofness, and an ability to rise above any situation, even if only for a few seconds" (1959, p.42). As an inmate of Dachau, he and a friend promised each other they would invent at least one amusing story daily about some incident that could happen one day after their liberation. Thus, there seems to be substantial informal evidence for the proposition that profoundly stressful experiences, shared in a social setting, can mold one's sense of humor into an adaptive coping mechanism. The results from three fairly
recent research studies involving various occupational groups, lends credence to the claim that humor is a method of dealing with occupational stress. Two of these studies involved high school principals (Luzzolino, 1986) and school administrators (Zieminski, 1982). In both studies respondents were asked to rate coping strategies they used to deal with job-related stress. The coping behavior reported to be most commonly used and most effective was reliance on or maintenance of a sense of humor. The third study which is most relevant to the study described below, is a report about paramedics' strategies for dealing with death and dying (Palmer, 1983). Data from participant observation and informal interviews revealed that paramedics are assisted in their response to death and dying by six principle coping aids, one of which is humor. Others, identified by this group are educational desensitization and rationalization, language alteration, scientific fragmentation, and escape into work. Given that which was presented above, it appears that there is some descriptive groundwork supporting the notion that critical care health professionals as well as other occupational groups report the use of humor to be an important stress-buffering coping strategy.

The research project described below was designed as an attempt to investigate the fluid, adaptive nature of humor. The overall conceptual premise was that any group of
individuals confronted with high impact, chronic stress needs to develop long-term stress reduction solutions. Paramedics constitute a particularly interesting group of individuals who could be studied for their reactions to major life-threatening stresses. The paramedic experience contains the elements of high stress on several fronts. They are confronted with all aspects of the "human parade"; physical catastrophe, emotionally taut situations, and the burden of responding quickly and appropriately. In addition, this is not a one-time stressful experience but, potentially a life-long pattern of continuous stress inducement. It would be unusual that an individual would come so completely prepared for this experience that no adjustment in coping or psychological functioning would be necessary. The assumption is made that individuals are assisted in the development of a particular humorous attitude through an informal subculture of "black" humor into which new recruits are implicitly indoctrinated. The exposure to humorous modeling behaviors by experienced paramedics and critical care specialists is easily transmitted to novices via the social nature of the training experience. Social learning may well take place through disinhibitory and response facilitation effects (Bandura, 1971). Theoretically, this provides a mechanism for the learning of a social behavior in a milieu which not only condones but encourages its presence. Anecdotally it has
been reported that humor can be an effective EMS (Emergency Medical Service) tool for both the paramedic and the patient (Zeirke, 1988).

With the support of current theorizing and some empirical evidence, it is suggested that humor can be a significant therapeutic factor in helping individuals cope with stress and adapt to new situations. It is also suggested that humor responses can change over time in order to function more adaptively in stress moderation. These two propositions are unified in the concept that humor is a flexible stress buffer, one which can change or grow as the individual encounters different situations. The paramedic experience presents us with the opportunity to study how an individual's sense of humor may change and how it can be used to buffer specific, high impact stresses. Overall, the purposes of this study are to 1) identify any changes in humor appreciation or production as a result of paramedic training and experience and 2) explore how these changes may be part of a functionally adaptive method for coping with the stress inherent in the paramedic experience.
The following five research questions were addressed in the investigation:
1) Is the nine month paramedic training experience causally related to a change in the nature or amount of one's sense of humor?
2) Does the paramedic's perception of humor as a coping mechanism change following the paramedic experience?
3) Does an accumulation of other major life stress events significantly affect one's sense of humor?
4) Does continued experience as a trained paramedic further modify the individual's humor response?
5) What qualitative data is there (provided by subjects from the pre-training, post-training and experienced paramedics groups) to support the premise that one's sense of humor changes adaptively in response to the paramedic experience?
Chapter two consists of three sections. The first section includes the presentation of an overall conceptual framework of humor theories which provides a theoretical anchor for the study at hand. Next, a selective review of the literature and research findings related to humor's relationship to coping with psychological stress and general level of emotional adjustment is presented. The final section consists of a discussion of those studies in which attention was given to one's ability to use humor in coping with occupational stress. A special attempt was made in this discussion to document the unique brand of stress related to critical care medicine situations and the use of humor as a coping mechanism under these circumstances.

Conceptual Framework of Humor Theories

In an attempt to understand how humor is used by the subjects as a possible coping mechanism used to deal with stress, an overall conceptual framework of humor theories is presented below. Several theories will be discussed that reportedly offer plausible explanations, either general or specific, as to how or why humor may manifest itself in stressful situations.
The Incongruity Theory of Humor

It is the contention of the investigator as well as other humor theorists (McGhee, 1979) that the concept of incongruity comes the closest "to being the foundation stone of humor" (p.46). Incongruous relationships, which reveal something as inappropriate, unexpected, or surprising are the essence of what is interpreted as humorous. The basic idea behind incongruity is not complex. We live in an orderly world, where we come to expect certain relationships, patterns, and properties of things. We may find something humorous when this order is violated, when something doesn't fit (Morreall, 1983). Whether in the realm of objects, behavior, social custom, or language, humor invariably requires a comparison of what is expected and what is encountered. This comparison is always the basic, underlying process of a humorous situation.

The incongruity theory was not conceptualized in any detail until the eighteenth or nineteenth centuries by Kant and Schopenhauer. According to Kant laughter is "... an affection arising from the sudden transformation of a strained expectation into nothing" (Keith-Spiegel, 1972, p.8). Schopenhauer's version of the incongruity theory is somewhat different than Kant's (Morreall, 1987). Rather than getting nothing as a result of our expectation, Schopenhauer feels that we get something that we are not expecting; the punchline does not fit in the expected or
"normal" way. Schopenhauer viewed the cause of laughter to be "... simply the sudden perception of the incongruity between a concept and the real objects which have been thought through in some relation, and the laugh itself just an expression of this incongruity" (Grieg, 1969, p.253). Thus, what causes laughter is a mismatch between conceptual understanding and perception.

In this century, humor theorists such as Bergson (1911), Leacock (1938), and Baillie (1921) are modern proponents of the incongruity theory. Leacock (1938) described humor as the contrast between a thing as it is or ought to be and a thing smashed out of shape, as it should not be. Baillie, in 1921, asserted that we have the permanent conditions of laughter in contemporary society, since any departure from social standards is incongruous (Keith-Spiegel, 1972).

Incongruity is present in varying degrees in humorous content. Those jokes which are affectively neutral usually contain a great deal of surprise or incongruity. The punchline is truly unexpected. Those humorous jokes with less incongruity usually have some affective content to which we respond. Simple incongruities, as expressed in much sexual and aggressive humor, cause laughter due to the joke's ability to trigger emotional arousal. Even the simplest expressions of humorous sexual content (i.e., children's taboo words such as pee-pee or ka-ka) derive some
of their pleasure from their use in an "inappropriate" social context. Thus, all humor is hypothesized to be based on incongruity; the individual must perceive that something unexpected, surprising, or inappropriate has occurred, otherwise, nothing amusing is experienced.

**Incongruity Theory's Application to Critical Care Medicine**

That humor is present and even prevalent in critical care medicine (Palmer, 1983, Lieber, 1986, Zierke, 1988, and Keller & Koenig, 1989) is strongly supported by the incongruity theory. The nature of critical care and emergency medicine is extremely serious. To say that people's lives are at stake is not a mere exaggeration, it is reality. Appropriate recognition and response to patients' physical and emotional problems, existential confrontation with death and dying, realization of social inequities (i.e., poverty, abuse of children and the aged) are just some of the issues which make critical care medicine a serious, if not depressing, affair. Thus, to inject humor into this arena is truly unexpected, surprising - incongruous. The entire milieu of critical care medicine provides the perfect environmental setting for incongruous humor. Other theoretical conceptions are interwoven with incongruity to explain critical care humor use - tension relief, cognitive reframing, and superiority (Lipson & Koehler, 1986, Leiber, 1986, Robinson, 1977, and Ziv, 1984).
However, the basic ingredient in all forms of critical care humor is incongruity. The grave and demanding nature of the work make it so; thus, to joke about that which is so serious is genuinely unexpected, spontaneous, surprising. Professional comedians have long profited from the axiom—"Reality makes a great straightman". It is no less true here.

The Superiority or Mastery Theory of Humor

The expression of a person's feeling of superiority over other people is the oldest, and perhaps, the most widespread theory of humor (Morreall, 1983). The basis of laughter in this case is in the triumph over other people or circumstances. Elation is produced when we compare ourselves favorably to others as being either less stupid, ugly, unfortunate, or weak. According to the principle of superiority mockery, ridicule, and laughter at the foolish actions of others are central to the humor experience (Keith-Spiegel, 1972).

In written history, this theory goes back as far as Plato and Aristotle. They both agree that laughter is basically a form of derision and the proper object of laughter is human evil and folly. "To make jest of a man is to vilify him in a way . . . " says Aristotle in the Nichomachean Ethics (Grieg, 1969). He holds that the ludicrous is to be found in some defect, deformity, or
ugliness which is neither painful nor destructive. Even wit is just regarded as a case of "educated insolence" (Rhetoric I I in Grieg, 1969). Both Plato and Aristotle regard the enjoyment of humor as essentially malicious and recommend it not be engaged in frequently.

The superiority theory as presented by Plato and Aristotle was influential on later thought about laughter, though little was added to the theory until Thomas Hobbes put it into stronger form. Hobbes in Leviathan (1651) defined laughter as "... nothing else but sudden glory arising from a sudden conception of some eminency in ourselves, by comparison with the infirmity of others, or with our own formerly". Laughter is, thus, based on self-congratulation and personal triumph. Like Plato and Aristotle, Hobbes was concerned that laughter could be harmful to a person's character.

Hobbe's account of laughter became the classic form of the superiority theory. It has been defended and developed by many theorists in the last three centuries. An interesting development of this theory is the attempt to understand laughter in an evolutionary way. Konrad Lorenz (1966) suggested that laughter evolved from aggressive gestures and still retains this hostile character. Albert Rapp, in tracing the evolution of humor, stated that all laughter has developed from one primitive behavior, "... the roar of triumph in an ancient jungle duel" (1951). Anthony Ludovici (1932) believed humor to be a case
of a person feeling superior adaptation to some specific situation or to his/her environment in general. In a similar vein, Martha Wolfenstein (1954), a prominent psychoanalyst, conceptualized humor as a means of achieving mastery over endogenous or exogenous sources of anxiety and distress. These last interpretations shed a more modern light on the application of superiority humor. An important concept underlying the enjoyment of superiority humor is the element of mastery. Mastery over others was the original intent of superiority humor. However, with the increasing complexities of modern society, we can extend the notion of humor use for the purpose of mastery to a variety of areas - ones own restricted ego, environmental circumstances, ideas or concepts, institutions, the self within an existential context. This broader interpretation suggests that the pleasure derived from mastery and feelings of competency may be an inherent motivational force for engaging in humor appreciation and production. This conceptualization is consistent with Robert White's theory of effectance motivation (1959). Human beings appear to demonstrate a need to master and deal competently with their environment, both cognitively and physically. Emotionally there is a sense of pleasure in being masterful, what White describes as "feelings of efficacy". Thus, a more current conceptualization of superiority humor (one that parallels our changing society) is that it functions as a mechanism to display our mastery in a variety of situations.
Superiority Theory's Application to Critical Care Medicine

Critical care medicine is a field where a sense of mastery of a number of issues is intrinsic to daily functioning. One is challenged to treat all patients appropriately and efficiently. There is tremendous pressure to make correct decisions since incorrect ones may prove life-threatening. There is also the emotional challenge to maintain control over the environment and oneself in tense and sometimes chaotic situations. The sum of these daily pressures underscores the need not to become overwhelmed in critical situations, to remain competent and feel in control. Humor, in this case, can function as an instantly useful mechanism to maintain oneself over events which are physically and emotionally traumatic and sometimes catastrophic (Ziv, 1984). Personal mastery (superiority, if you will) must be preserved over potentially overwhelming situations. Effective humor use under these conditions aids the caregiver in continuing to provide competent and objective treatment to patients (Mindess, et al, 1985, Robinson, 1977, and Lipson & Koehler, 1986).
The Relief Theory of Humor

A third classical explanation of humor is found in the scholarly productions related to the relief theory. Relief theorists view the functions of humor as providing relief from strain or constraint, or releasing excess tension. There are two ways in which relief might fit into laughter situations. The individual may come into the situation with the nervous energy to be released, or the humorous situation itself may cause the build-up of nervous energy, as well as its release (Morreall, 1983). Spencer was the first to state clearly the physiological, excess-energy theory of humor. The release of energy through laughter is accomplished when feelings are built up but then are seen to be inappropriate. This purposeless, nervous energy is discharged muscually, thus, we see the physical expression of laughter (Goldstein & McGhee, 1972).

Spencer's theory of laughter influenced many subsequent thinkers on the topic. John Dewey, for example, accounted for laughter as the sudden relaxation of strain, "... it is of the same character as a sigh of relief" (Grieg, 1969, p.265). According to Kline, "the tension accompanying thought occasionally exceeds the capacity for controlled thinking causing a wave of emotion. Sometimes this leads to humorous experiences which serve the useful purpose of alleviating the strain involved in sustained attention" (Keith-Spiegel, 1972). Probably the most famous
individual to expand upon the relief theory of humor was Freud. A great deal of research on humor response and appreciation has been generated by Freud's psychoanalytic perspective of humor. Most of this theory was delineated in one treatise, *Jokes and their Relation to the Unconscious* (1959).

For Freud the essential psychological mechanism of jokes is the "savings in psychical expenditure through the shortcuts achieved in defying the laws of logic" (Jones, 1955, p. 336). The pleasure derived from wit and humor was hypothesized as arising from two different sources. In wit, pleasure is experienced from the economy in the expenditure of inhibition. In his early work, Freud saw wit as part of the neurosis while later he regarded it as a release mechanism of the healthy individual (O'Connell, 1972). Wit can be harmless as in the enjoyment of nonsense or childishness, or it can express inhibited tendencies. Social restrictions, as imposed by the superego, do not permit the acting out of tendentious behavior in a direct manner. Wit permits the momentary gratification of some hidden or forbidden wish, while the anxiety that normally causes the inhibition of the wish is reduced (Freud, 1959). The psychoanalytic model of the relief theory thus explains the wit response as a savings of energy brought about by either a temporary regression to a childish mode of thought or by a savings in the amount of energy normally required to
maintain safeguards and defenses against tendentious material.

In a broad sense, tendentious aspects of humor reflect on our personal struggles with common anxieties and conflicts. These "rebellious" issues will cause affective arousal when piqued. Some emotional venting is then in order to reduce the tension level. Humor allows a more socially acceptable avenue to express our emotions and anxiety, thereby reducing their impact. Consistent with the previous section on superiority humor, mastery over sources of anxiety is achieved through temporary relief of tension via humor (Wolfenstein, 1954). Humor can act as one of our healthiest psychological defenses when used for affective release.

The Use of "Wit" in Critical Care Medicine

The application of the use of wit to critical care medicine appears to be quite direct. As previously described, the tensions found in this setting are mental, physical, emotional, and spiritual. To compound this scenario, the timing of critical events is never known; there is no chance to prepare for specific circumstances. Without adequate preparation time and due to the serious nature of the work, tension and anxiety can build quickly. Wit serves the function of an effective emotional release, allowing tensions to temporarily dissipate. The most important effect of using wit in this situation is that the
caregiver can maintain a level of competency, unhampered by excessive anxiety that critical situations naturally arouse (Zeirke, 1988).

**Freud's Theory of Humor**

Serving a somewhat different function, Freud addressed the pleasure derived from humor (1959). Here there is an economy in the expenditure of feeling. Like wit, humor has a liberating effect. But it also has something elevating about it which is lacking in the pure expression of wit. "... what is fine about it is the triumph of narcissism, the ego's victorious assertion of its own invulnerability. It refuses to be hurt by the arrows of reality or be compelled to suffer" (Freud, 1959, p.217). Humor turns an event that would otherwise cause suffering into one of less significance; it is a defense against unpleasure, and the energy set free from directly dealing with unsettling or disagreeable circumstances is itself a source of pleasure (Jones, 1955). In Freud's psychoanalytic theory humor became part of the conception of psychological maturity. Behaviorally, the humorous person who is under unavoidable objective stressors does not display emotional decompensation and hostile regression but faces those stressors with nonhostile jests (O'Connell, 1975). Freud came to view humorous expressions as basic adjustment devices and their effect was of positive value to the
individual. Other, more recent theorists have echoed and expanded Freud's views on humor. Allport (1955), Maslow (1962), and Rogers (1961) are among the personality theorists who give humor an important role in the functioning of the healthy personality. Allport feels the "capacity of self-objectification is always tied to insight and a sense of humor" (Monte, 1977, p.536). He finds humor to be "a remarkable gift of perspective by which the knowing function of a mature person recognizes disproportions and absurdities within the proprium in the course of its encounters with the world" (Allport, 1955, p.56). Max Eastman suggests that through humor we can better accept disappointment and pain in a playful way (1936). A sense of humor thus serves as an important reality guide and as an adaptive mechanism for coping with life events. Mindess (1971), a prominent humor theorist, contends that to the extent which our sense of humor can help us maintain our sanity is the extent to which it moves beyond jokes, wit, and laughter itself. Mindess speaks of the development of the "humorous attitude" which has liberating and therapeutic effects upon our thinking and behavior. When we operate out of our sense of humor we become free to look at ourselves and our situation with a wider perspective. We can appreciate the ironies that permeate our daily activities (1971). This more cognitive perspective of humor allows for a distancing from life's troubles, the ability to look more
objectively at one's subjective situation. Gallows humor is perhaps the highest form of distancing. "Such humor may provide a means of temporarily transcending the immediate situation, objectifying it, and in this way, coping with it" (Goldstein, 1976, p.111).

To diminish one's inadequacies by jesting about them is another form of distancing through humor (Mindess, 1971). This objectification of one's weaknesses (either lack of perfection or inability to control all situations encountered) lessens their impact. The ability to find humor in our failures, as well as our successes, shows a transcendence of the particular situation we are in. It frees us from egocentrism and from taking ourselves and our endeavors too seriously.

The benefits derived from the "humorous attitude" are often the basis for using humorous intervention in therapeutic encounters. Humorous interpretations and directives are used to help clients deal with, and distance themselves from, symptoms and problems; to defuse angry feelings, demonstrate the irrationality of symptoms; and to redefine, and thereby gain control over one's situation (Siporin, 1984). Frankl (1969) used the technique of paradoxical intention, an extreme exaggeration of the client's neurotic symptoms. The purpose of this intervention is to help the client develop objectivity and detachment toward their neurosis by laughing at it. Frank (1969) commented:
Humor allows man to create perspective, to put distance between himself and whatever may confront him. By the same token, humor allows man to detach himself from himself and thereby to retain the fullest possible control over himself (p. 1083).


The Use of "Humor" in Critical Care Medicine

The benefits to be derived from humor as conceived by Freud and others are somewhat different than the effects of wit. Wit's primary value is affective release, a temporary relief valve for mounting tension. Humor's essential value is in its ability to cause cognitive and emotional refocusing. Its use then would seem to have rather direct and important application in critical care medicine. Personal issues involving the repeated self-questioning of adequate performance of patient care, identification with patients, role confusion, overinvolvement with patients, confrontation with existential concerns, and an overly serious attitude could possibly all effect the caregivers physical and emotional responses. Humor's use under these circumstances could be viewed as being very similar to its use in psychotherapy. There is a tremendous need to
distance oneself from the immediate situation, to regain some perspective, objectivity, and perhaps insight. This cognitive refocusing permits the caregiver to continue delivering professional care while also deflecting the dysphoria or depression inherent in many critical care situations. Given that which was reported above, it has been demonstrated that when competence, objectivity, and personal control need to be maintained under stressful circumstances, humor can be used as an effective coping and defensive mechanism (Mindess, 1971 & Morreall, 1983).

**Humor's Relationship to Coping**

In this section humor's use as an adaptive mechanism for general coping and stress reduction is explored. For the most part, the research literature reviewed here consists of findings from a number of empirical studies. At the onset, it should be noted that studies have yielded both positive and null findings.

Several studies designed to investigate humor's role as a moderator for the effects of stressful life events produced null or only partially positive findings (Safranek, 1981, Safranek & Schill, 1982, Mueller, 1987, Schill & O'Laughlin, 1984, Schindelman, 1987). Safranek (1981) observed no significant moderator effects of humor on the anxiety, depression, or physical symptoms checklists she administered. Among both men and women the only significant
relationship she found was a positive correlation between humor appreciation and flexibility of coping style (i.e., the ability to perceive multiple perspectives and use more than coping strategy). Safranek and Schill (1982) reported similar null findings, stating, "Although humor seems to have potential to help one put stressful situations into a less threatening perspective for the moment, it is an indirect method of coping and by itself may not be effective in moderating the effects of stress over time" (p.222). They reported that their overall results indicate humor, at least by itself, does not moderate the effects of life stress. They cite as a potential weakness of their study the focus on life stress in general, where no significant results were found. Humor may be effective in coping with particular situations, thus, a more focused approach to its study may prove fruitful. Mueller's lack of findings (1987) also support the above discussion.

Two studies focusing on the relationship between humor preference and coping with stress again yield mostly null findings. Schill and O'Laughlin (1984) report only one humor category to have a significantly moderating, gender-specific effect against psychological distress. The results suggest that preference for sexual humor and coping with stress are related for men but not for women. Shindelman (1987) specifically investigated the appreciation of hostile targeted humor as a moderator of event-specific and global
perceived stress. No statistically significant relationships were found; neither level of appreciation for hostile jokes nor level of favorability toward non-hostile jokes improved predictability of psychological or physical illness.

Studies focusing on the use of humor for adaptive functioning in specific populations has yielded mixed results (Masten, 1982, Trutt, 1983, Steinfeld, 1986, Jacobs, 1985, and Duffy, 1972). Although Masten (1982) did not find a significant relationship between humor and stress resistance in urban children, her results did suggest that humor generation may be associated with competence under stress. In a study of adolescent humor functioning (Steinfeld, 1986) it was found that humor perception was a significant and positive aspect of adolescent personality and that it correlates with healthy adjustment in this age group. Similarly, Duffy (1972) concluded that one of five important parameters which characterize successful aging is the maintenance of a sense of humor. In studying adult subject's (aged 25 to 66) adaptation to married life, Jacobs (1985) investigated the relationship between the way spouses use humor with each other and their marital adjustment. It was found that more successful marital adjustment was related to a greater degree of positive humor use. The above positive findings, reported over various age spans, do provide some support for the notion that humor can be a
flexible, lifelong coping mechanism, capable of promoting a positive adaptation to a variety of circumstances.

There are a number of well designed studies which yielded results in support of the hypothesis that humor reduces the impact of stress (Martin, 1984, Martin & Lefcourt, 1983, Bizi et al, 1988, Clabby, 1980, O'Connell, 1961, Labott & Martin, 1987, Fay, 1983 & Frecknall, 1988). The sense of humor as a moderator of the relation between stressors and mood has been reported by Martin (1984) and Martin and Lefcourt (1983). They conducted a number of studies designed to test the hypothesis that a sense of humor reduces the deleterious impact of stressful experiences. In each study a negative life events checklist was used to predict stress scores on a measure of mood disturbance. These studies made use of different measures of subject's sense of humor, under conditions of no stress and mild stress (laboratory setting). A majority of the humor measures produced a significant moderating effect on the relation between negative life events and mood disturbance. Subjects with low humor scores obtained higher correlations between these two variables than did those with high humor scores. These results provide some initial evidence for the stress-buffering role of humor. The above studies are particularly noteworthy because of their use of multiple humor measures under both nonstressful and stressful situations.
In a similar vein, Fay (1983) investigated the role of humor in the defensive processes of the ego in withstanding stresses from the environment. It was found that the subjects who were most effective in coping with the stress in their lives had the greatest capacity to appreciate humor. Subjects who were least effective in dealing with the stress in their lives exhibited a subordinate ability to use humor. Fay concluded that humor did in fact function as a defense mechanism in protecting the ego from internal as well as external stress. Labott and Martin (1987) present similar positive findings for the stress buffering effect of coping through humor.

An important refinement in studying humor's relationship to stress coping are those attempts to examine this process under natural, field conditions. Bizi, Keinan, and Beit-Hallahmi (1988) investigated the relationship between humor and coping with stress for trainees in a military combat course. Their findings demonstrated that humor as rated by peers was positively related to performance under stress. This was especially true for humor that was self-produced (as opposed to reactive humor). This result corroborates previous findings (Martin & Lefcourt, 1983) that for humor to moderate the effects of stress the individual must be able to produce humor, particularly in the stressful situations that he or she encounters in daily life. The current investigation
emphasizes the exploration of humor's use under field conditions of high stress within a specific population.

Frecknall (1988) employed an important and interesting methodology in his investigation of the uses of humor in everyday life. A phenomenological data analysis of in-depth interviews was used in this study, facilitating the acquisition of relevant, contextually appropriate data. Taking an event-oriented focus, humor was studied in this work as it was experienced as a positive force by the participants. Findings were significantly consistent with a consensus that humor is much more present and powerful in people's lives than they had imagined prior to reflection and analysis. The specific themes that emerged offer a clearer perspective on humor as a powerful component of psychological health. The qualitative nature of this research is an important addition to the body of correlational studies in the literature.

Two other studies worth noting are particularly interesting for the initial questions they ask. Clabby (1980) tested subjects on 12 variables thought to be related to the successful prediction of wit. This is somewhat of a reversal from previous studies which seek to successfully predict coping. A significant correlation was obtained between wit and personal adjustment, one of only two personality characteristics found to make a significant contribution. A high scorer on the personal adjustment
scale was seen as having a positive attitude toward life, being adaptable, working diligently towards their goals, and fitting in well. One other noteworthy study examines humor and health from an epidemiological perspective (Silberman, 1987). The hypothesis was tested that there is a relationship between the health of individuals and their society and the role of humor. Epidemiological data on health and illnesses with psychosocial components and indicators of media humor were examined between 1970 and 1980. The author found a decreasing presence of humor in the United States that "paralleled and to some extent contributed to increased medical and social problems" (p.110). Though this statement is difficult to take at face value due to the great number of independent, extraneous variables to be considered, the sociological focus of the study is enlightening. The individual, a family, a work group, or an entire society are all important sources of information for discovering humor's stress-buffering ability.

For the most part, the studies cited above were designed to demonstrate a direct relationship between humor and its ability to moderate the effects of stress. Another group of empirical studies were designed to show a relationship between humor and variables related to coping. William Fry (Moore, 1985 and Stokes, 1988) points to the positive relationship between humor and physical well-being,
and Smith (1971) to its role in reducing anxiety. Positive correlations have also been found between humor and internal locus of control (Lefcourt, Sordoni, & Sordoni, 1974 and Lefcourt, Antrobus, & Hogg, 1974), Kobasa's hardiness variable (Lefcourt, Martin, and Eber, 1981), self-monitoring (Turner, 1980), and a positive self-image (Goodchilds, 1972). These findings generally support the use of humor as a moderator variable, indirectly affecting one's ability to cope with stress. Some of the previous studies where findings were null (Safranek, 1981 and Safranek & Schill, 1982) alluded to the possibility that humor's stress-buffering ability may best be demonstrated indirectly.

One further area of literature should be highlighted that relates humor to personal adjustment and differences between healthy and malfunctioning individuals. "A well developed sense of humor, the ability to enjoy what is funny and to laugh at ourselves, are signs of personal adjustment and self-esteem, of individuation, and being human" (Siporin, 1984, p.459). This statement is supported in the research of O'Connell (1960) in which the well adjusted person showed a significantly greater appreciation for humor than did the poorly adjusted person. A number of investigators have used humor to differentiate the responses of normal and psychiatric patients. The overall conclusion from these studies is that psychiatric patients seem to appreciate humor less than normals and are more likely to

If a sense of humor is part of healthy personal adjustment, then its inclusion is merited as a diagnostic indicator of psychological functioning. Havens (1984) discusses the need to test for humor as one measure of normal functioning in the psychiatric interview. The presence of humor contributes to maturity and provides a protective element within the personality. O'Connell (1960) also found humor to be a stable personality trait associated with maturity. Humor, thus, has diagnostic dimensions which acknowledge its potential as a valuable monitoring device of patient assessment and change (Nussbaum & Michaux, 1963, Hickson, 1977, and Dewane, 1978).

As noted earlier, this section was designed to establish humor’s relationship to general psychological adjustment and its use as a coping strategy to buffer the effects of stress. It is particularly important to establish the validity of these two ideas in an effort to provide overall conceptual support for the study at hand. The assumptions being made here are that 1) humor is readily accessible to all normal individuals as a healthy aspect of their emotional functioning and 2) humor can indeed be flexibly used in a variety of situations as a coping or
defense mechanism. The findings presented in this section provide considerable evidence for both of these premises. In order to further build on this body of empirically based research literature, the investigation reported here was designed to examine (both quantitatively and qualitatively) the use of humor by a specific population of subjects (paramedics) under environmental conditions of very high stress. In addition, the study was designed to explore the fluid nature of humor by determining whether or not humor responses change over time as a result of the stressful paramedic experience.

Coping with Occupational Stress through Humor

In the previous section it was asserted that humor use does indeed have some positive impact upon successful stress-coping and personal adjustment. In this section, attention is shifted to literature which focuses on the use of humor in health and non-health occupational settings. The particular kind of stress experienced in critical care medicine, the use of humor to cope with daily stress, and the unique brand of humor employed by critical caregivers will be reviewed here. These topics are of particular relevance due to the occupational focus of this study in a critical health care setting.
Humor Use in Non-Health Settings

A number of studies have been conducted which explore the relationship between occupational stress and humor use among business managers, factory employees, teachers, and educational administrators (Parsons, 1988, Mills, 1981, Koenig, 1987, Saddler, 1986, Spradling, 1984, Peters, 1981, Luzzolino, 1986, and Zieminski, 1982). In two studies using educational administrators as subjects, it was found that maintaining a sense of humor was the most commonly employed and effective strategy identified for coping with job-related stress (Luzzolino, 1986 & Zieminski, 1982). Two other studies investigated psychological stress and the type of coping techniques used to deal with stress among elementary school principals. Spradling (1984) found that humor was one of the four coping techniques perceived by males and females as most effective in dealing with job stress. Mills (1981) also reported that humor was used daily by her subjects to reduce or alleviate stress, though it was not given as the most effective means of handling stress.

In occupational settings outside of education the merits of humor use have also been explored. Parsons (1988) investigated the relationship between various occupational stress factors and the sense of humor among middle level managers. It was found that job stress, job dissatisfaction, organizational stress, life and health
risks, and accident risks were all significantly related to sense of humor. Approximately 90% of the participants agreed with the statements that 1) their problems seem greatly reduced when they tried to find something funny in them and 2) humor is often a very effective way of coping with problems. Kobasa (Lefcourt, Martin, Eber, 1981), in conjunction with her work on hardiness, proposed a model directed toward uncovering moderator variables which interact with stressful conditions to produce emotional upset and physical illness. A sense of humor was found to be one important variable, functioning as a defense mechanism against psychological stress.

Going beyond the documentation of humor use as an occupational stress buffer, academicians, therapists, and physicians have sought to teach humor techniques to employees in various settings (Koenig, 1987, Peters, 1981, Weinstein, 1985, and Saddler, 1986). Peters (1981) developed a workshop model for effective stress management for teachers. Humor was presented as one of five key mental moderators of stress. Instruction, exercises, and discussions regarding effective humor use were presented. At the Third Annual Conference of the Healing Power of Laughter and Play, Matt Weinstein discussed the power of humor in the work environment and demonstrated several activities to reduce work-related stress and tension through the use of laughter and positive emotions. C.W. Metcalf
(Koenig, 1987) took his workshop directly to the employees of Owens-Corning Fiberglass to help relieve their job-related stress through the teaching of humor strategies. Many of the occupational stress workshops and consultations offered in business and educational settings, emphasize humor as an important coping tool against daily job stress (Zoloto, personal communication). Both management and line staff can benefit from its use.

The Nature of Critical Care Medicine

Given that which is reported above, the identification of humor use as an effective way of dealing with occupational stress has some support in non-health related settings. Though each occupational setting has its own unique content, there is often a good deal of overlap in terms of type of stress experienced (i.e., organizational, time efficiency). Health related settings also have many of the same stressors found in business and education. However, there are tensions experienced which are peculiar to this area, especially so in critical care, where employees have qualitatively different stress experiences than those in non-health professions. It is important to document the nature of these experiences since it influences how and when humor is used to relieve stress.
Unlike other professions, the health professions are faced with stressors that involve perceptual, cognitive, and affective mediating processes (Hammer, et al, 1986). "The pressures of assuming responsibility for another's life, chronic time urgency, or contact with a large number of patients are among the stressors of these professions" (p.536). Critical care medicine usually involves interacting with people who are acutely suffering, in a state of physical and emotional decompensation. Appropriate recognition and efficient response to the patient's physical and emotional problems are imperative, yet made more difficult by the patient's distress. There is tremendous pressure to quickly conceive "correct" decisions since incorrect ones may prove life threatening. In addition there is no time to prepare for critical events; one must be able to "gear up" rapidly to meet the mental and physical demands of the job. Maintaining a sense of calm and control over oneself and the critical care environment is vital for the provision of competent health care under conditions of high stress.

Perhaps the most profound stress of critical health care is that tragedy is often the nature of the work. There is no way of minimizing the impact of death in critical care medicine. For all personnel, as well as patients and relatives, death represents a major event. Paramedics especially, "encounter death and dying routinely
in the course of their jobs. Many times the death is not a clean and sterile occurrence but is witnessed and/or participated in under the most trying physical and emotional conditions" (Palmer, 1983, p.83). The reality of death often underscores the discrepancy between actual practice and the myth of the "superhuman" (i.e., savior, helper, rescuer) health care provider (Keller & Koenig, 1989).

Experiencing feelings of both omnipotence and impotence in dealing with patients' life problems can result in emotional highs and lows for staff (Lipson & Koehler, 1986). The phenomenon of burnout can be the painful result of this unrealistic, self-imposed expectation of omnipotence (Henderson, 1984).

Few descriptions of the kinds of personalities who choose careers in emergency medicine exist (Anwar & Hogen, 1979). It is observed that the responsibilities appeal to "aggressive, action-oriented people who wish to see instantaneous return for energies expended" (Rosen & Honigman, 1988, p.9). All enjoy the surge of combat against death, and many view themselves as being the frontline troops in saving lives. This is especially true of paramedics who, by and large, deliver prehospital care and encounter the greatest number of opportunities to save lives. In addition, many emergency personnel are young and personally unthreatened by ill health. In a population confronting death in so many aspects, it is unfortunate that
little philosophical guidance or support for introspection has been encouraged as a necessary part of the profession (Rosen & Honigman, 1988). Many do, however, view death as a personal failure. These conflicting aspects can lead to profound cynicism and disenchantment (Rosen, 1979).

Several factors related to contact with death and dying lead to the increased tension and grief in emergency personnel. One of these factors is that the typical staff is ill equipped to deal with the frequency of death and tragic events. When one includes the social and personal impact of having to clean up the results of what often are viewed as devastating and unnecessary horrors, one can envision the enormous impact such events create (Rosen & Honigman, 1988). Furthermore, the emergency personnel are frequently required to give care to the person responsible for the accident or injury (e.g., the drunken driver with minor injuries who caused a head-on collision fatally injuring others). For some this may require expending tremendous energy in order to maintain self control and a caring attitude.

Another source of grief is the unacceptability of death in the young or otherwise "undeserving" (Rosen & Honigman, 1988). Emergency personnel can usually deal adequately with the death of an elderly person who suffers a stroke or cardiac arrest; but it is much more difficult to cope emotionally with a SIDS (Sudden Infant Death Syndrome)
infant or a child fatally injured through abuse. Feelings of horror, rage, and frustration can erupt in response to the innocence and unfulfilled nature of the life taken. Emergency personnel deal with many unpleasant and unfortunate circumstances in the course of their work. They are most moved, however, by the tragedy of those victims who do not appear to have deserved their fate (Rosenberg, personal communication). The existential nature of this experience often leads the critical care giver to question why bad things happen to good people. Kushner (1981) addresses this wrenching subject and asks, "Can you accept the idea that some things happen for no reason, that there is randomness in the universe? Some people cannot handle the idea" (p.46). For those who are deeply affected by these tragic events, awareness and consideration of these issues are vital to lessen the inner sense of distress and disillusionment.

The impact of stress on performance provides the major reason for concern. Stressed providers tend to see patient complaints as trivial, make inaccurate diagnoses, and show significant deficits in relationship skills (Maslasch, 1978). They often exhibit a numbing of emotions, excessive self-criticism, a cynical attitude, and, ultimately, a dissatisfaction with the field (Strauss & Glaser, 1970). Another study (Hammer, et al, 1985) of emergency department personnel, demonstrating similar findings, identified four
dimensions of an occupational stress syndrome: 1) organizational stress, a negative attitude about one's place of employment and coworkers; 2) negative attitudes toward patients, a negative feeling about patients including an insensitivity to their physical and emotional needs; 3) job dissatisfaction, a discontent with one's current position; and 4) somatic distress, including fatigue, increased illness, and self-medication to relax.

Several studies have been crafted to investigate the particular occupational and response stressors encountered by paramedics. Mason (1982) reported that role conflict and role ambiguity were the most commonly identified occupational stressors. A stable set of response stressors were also found to exist in the study population. These included infant death, dealing with mass casualties, and childbirth with complications. Another study (Cox, 1980) sought to identify the occupational stressors which characterize the work of two types of emergency personnel — paramedics and EMT's (emergency medical technician). For both groups, pediatric trauma ranked as a persistently high stressor. Paramedics, however, evidenced more occupational strain in a variety of ways than did EMT's. Role confusion, conflict with administration, fatigue, emotional involvement in work, and increased responsibility for human life characterized paramedic perceptions and complaints. Though both groups were similar on trait anxiety, paramedics were
significantly higher on state anxiety as well as exhibiting more psychological distress, fatigue, and a higher incidence of negative feelings at work than did the EMT's. Paramedics overwhelmingly identified intrinsic rewards and motivators in their work as opposed to extrinsic. This study recommended the implementation of a stress prevention and management program for fire departments concerned about reducing the harmful social, psychological, and physical impact of work stress on these men. In a similar vein, Hammer et al (1986) found that paramedics experience a high degree of job-related stress relative to other medical personnel. This stress manifests itself as job dissatisfaction, organizational stress, and negative patient attitudes. In a fourth study Scott (1980) was concerned with the burnout syndrome in ambulance paramedics. Paramedics with a high degree of burnout were characterized as experiencing high levels of emotional exhaustion and depersonalization and low levels of personal accomplishment. It was concluded that burnout is a major factor in the exiting of personnel from the paramedic field.

Humor Use in Critical Care Medicine

Anecdotally, as well as empirically, there appears to be ample evidence that the provision of critical health care is uniquely stressful. Strategies for coping are necessary for tension relief. Humor has been documented in the literature
as one way of coping with the stress inherent in the profession. It helps develop the "fluidity and flexibility needed to survive in an environment of rapid change, trauma, and difficulty" (Metcalf, 1987, p.20). Humor use has been reported as helpful for a variety of critical care and emergency personnel (e.g., nurses, physicians, paramedics). In a paper presented at the Second International Conference on Humor, Drs. Lindsey and Benjamin explained how humor is indispensable in the emergency room (Morreall, 1983). By distancing themselves through humor from the serious life and death situations they are in, physicians are able to offset depression, anxiety, and emotional exhaustion and allow their medical skills to operate at peak efficiency. "The efficacy of humor is simply stated: it keeps us going" (p.105). These observations receive empirical support from a study investigating the management of stress and prevention of burnout in emergency physicians (Keller & Koenig, 1989). Two coping methods were demonstrated to have a strong statistical relationship with high levels of job satisfaction and personal accomplishment - drawing on experience and trying to see humor in the situation.

Critical care and emergency nursing also identify humor as a useful coping strategy. According to Robinson (1977), in areas like intensive care units, emergency rooms, and operating rooms the situation is often tense. Where the anxiety for both patients and staff is high, and the
possibility of death is a threat, there is often a great deal of joking and humor. In a study cited by Leiber (1986), a comparison was made between the humor use of intensive care unit (ICU) nurses and oncology unit nurses. Nurses in the ICU reported using significantly more humor among themselves and with other staff than did nurses on the oncology unit. "Specifically, critical care nurses used it most frequently among themselves as a means to cope with job-related tension, frustration with 'the system', stress, and anger. With patients, nurses reported using humor most often to help with adjustment to hospitalization and the 'sick role', to reduce stress and anxiety, to combat depression, and for distraction during unpleasant procedures" (p.166). In another study (Hutchinson, 1987), critical care nurses were interviewed in order to determine their job stress strategies. Humor was identified as a self-care strategy which facilitates the use of four other major stress-buffering strategies used by nurses (acting assertively, cultivating, employing catharsis, and withdrawing). The unique subculture of the psychiatric emergency room has also been described in the literature (Lipson & Koehler, 1986). Humor was identified as the mainstay of work and the major coping mechanism of staff members. This subculture allowed staff to adapt to system overload and maintain morale in the face of a worsening economic situation and increased stress.
The use of humor by paramedics has also been noted in the literature (Palmer, 1983 and Zierke, 1988). When used appropriately, it can be effective in reducing patient anxiety. It is also used to relieve tension among the paramedics themselves after a stressful call. Research using a participant observation approach revealed that paramedics are assisted in their response to death and dying by six principle coping methods, of which humor is one (Palmer, 1983). This observation is supported in the literature by others who describe humor as an effective coping/defense mechanism in dealing with death and disaster (Lattanzi, 1984, Burkle, 1983, & Thorson, 1985).

Humor among critical care health providers is unique for one other reason - the frequent use of black or sick humor. Jokes of this type usually have content making fun of death, disease, deformity, accidents, or implying a morbid or grim intent. In his work on humor, Mindess (1985) discovered that doctors and nurses, especially those assigned to emergency units, often had a particular liking for sick jokes. "They tend to indulge in such humor as a way of relieving the tension of dealing on a daily basis with accident victims and horrifying events" (p.71).

The use of black humor enables a person to defend him/her self from the things that frighten them (Ziv, 1984 and Feinberg, 1978).
Black humor can be seen as a sort of challenge to frightening phenomena. This challenge carries a number of messages. First, the very naming of the phenomenon indicates that a person has it within their power to face it. Furthermore, not only are they not paralyzed by fear; they even contend that the phenomenon is not really that frightening — and, in fact, that it is rather ridiculous and even funny. Their laughter testifies to a sense of victory and control over the situation (Ziv, 1984, p.52).

While on the one hand black humor may frighten people who have not directly experienced a specific traumatic situation, it fulfills the function of encouragement for those who have. "These individuals encourage themselves with the aid of a nonserious approach to very serious matters, which neutralizes the horror and makes it possible to rise above it. . . In this aspect of self-encouragement, there is a sort of provision of strength for coping with the tragic situation" (Ziv, 1984, p.54). Though reality cannot be altered, one's attitude or perception about it can be temporarily modified so that effective coping behaviors are facilitated.

It has been hypothesized (Dundes, 1987) that the "sick" humor, popular in today's American culture, deals not only with public calamities but with private taboos (AIDS, Chernobyl, shuttle disaster). These jokes reportedly function as a collective mental hygiene defense mechanism that allows people to cope with disaster (Emmons, 1986). Sick "jokelore" serves to articulate anxieties, whether well-founded or not, about the state of one's health, thus,
facilitating the ventilation of private fears at a given instant in time (Dundes, 1987).

The frequency with which most people engage in sick or black humor has much to do with the content of their daily experiences. Most people are far removed from a steady diet of direct contact with illness, accidents, death, and social inequities. This, however, is the nature of paramedic work. Their occupational world is a skewed microcosm of human beings (and the environment) functioning at their best and worst. Accounts of paramedic duty graphically display the substance of their experiences (Palmer, 1983 and Zierke, 1988). Simply stated, the opportunities that emergency medical service personnel have to laugh at things that are basically frightening or sad protects their mental health. Charlie Chaplin (1966) was aware of this dimension of humor when he wrote, "A paradoxical thing is that in making comedy, the tragic is precisely what arouses the funny . . . we have to laugh due to our helplessness in the face of natural forces and [in order] not to go crazy" (p.327).

Recapitulation

This literature review chapter was divided into three sections. First of all, a comprehensive base of information regarding relevant theories of humor was presented. Evidence was then presented which addressed the possibility of the use of humor as a stress-coping mechanism and
facilitator of general psychological adjustment. Finally, data was presented in support of the use of humor specifically for coping with occupational stressors, emphasizing its application to critical care medicine and the unique type of stress encountered there.

Classical humor theories presented in the discussion of the overall conceptual framework included incongruity, superiority, and relief. The functions of humor that these theories were crafted to explain were then related to their use in critical care and emergency situations. The conclusion reached here was that in what appears to be a completely incongruous setting for nonserious interaction (a medical emergency), a positive case can be made for the use of humor in providing mastery and control over oneself and the environment, tension relief, and considerable cognitive and emotional refocusing.

The second segment of literature reviewed served to acquaint the reader with existing studies relevant to humor's possible relationship to coping with psychological stressors and possible facilitation of a general level of positive emotional adjustment. Considerable evidence was presented to support both of these notions though some inconsistencies were reported with regard to humor's empirically demonstrated ability to buffer psychological stressors. Design flaws in many of these studies included their general, retrospective approach in studying a
subject's life stress, use of a non-field based setting, and/or omission of a specific, definable stimulus to induce a stressful condition. In an attempt to control for many design flaws of previously reported studies, the investigation described below was crafted to study a specific, homogeneous sample of subjects, over time, under definable field conditions of high stress. The last section of the chapter consisted of a review of evidence supporting the use of humor for coping with occupational stress in both non-health and health-related settings. Positive findings for the efficacy of humor use as a stress buffer were documented in both settings. Particular emphasis was given to humor's use in critical care and emergency medicine, the unique stress encountered in this specialty, and the prevalence of black humor.
CHAPTER III

METHOD

Hypotheses

The following null hypotheses were tested:

\( H_{01} \): There will be no significant difference in sense of humor scores (ASHI scores) across pre-training and post-training phases of the investigation.

\( H_{02} \): There will be no significant difference in humor coping scores across pre-training and post-training phases of the investigation.

\( H_{03} \): There will be no significant relationship among measures of humor appreciation, humor production, and humor coping and life events' stress across the entire population of subjects.

\( H_{04} \): There will be no significant difference in the humor appreciation scores, humor coping scores, and humor production scores across the pre-trained, post-trained, and experienced groups.

\( H_{05} \): There will be no qualitative data discovered to support the notion that one's sense of humor can be used as a coping/defense mechanism in response to the paramedic experience.
Sixty-nine different subjects served as participants in this investigation. The subjects were classified according to their paramedic experience into three groups (pre-trained, post-trained, and experienced). Group 1 consisted of 37 pre-trained subjects who were tested just prior to the beginning of their paramedic training (pre-paramedic training phase). Comprising Group 2, were 21 out of these 37 paramedic trainees (four students were dropped from the program) who chose to complete the second round of testing upon successful completion of the nine month paramedic training program (post-paramedic training phase). This training program included both classroom and carefully monitored field experiences. Group 3 (experienced paramedic group) consisted of 32 veteran certified paramedics with 1-7 years of field experience who were administered the same tests as the subjects in Group 1.

The pre-trained group served as subjects in a pre-test/post-test design. The experienced group was included in an attempt to determine the presence of any continuing, long-term effect of the paramedic experience upon the appreciation and/or production of humor. All subjects were asked to complete Part I of the Antioch Sense of Humor Inventory, the Occupational Coping Humor Scale (also obtaining peer ratings for occupational humor coping for the pre-trained and experienced groups), Sarason's Life
Experiences Survey and a cartoon captioning instrument. In addition to the quantitative aspect of this study, there was a qualitative component. Structured interviews were conducted with a sample of the trainee paramedic group (both before and after training) and the experienced paramedic group. The Occupational Coping Humor Scale was also used to provide qualitative information from members of each group.

**Description of Paramedic Trainee Subjects**

Of the 69 subjects who participated in the quantitative portion of this study, 37 were paramedic trainees. Of these 37, 10 subjects were systematically (but not randomly) chosen to provide a representative sample for the qualitative interview component of the study.

Geographically, subjects were trained in two Emergency Medical Systems (EMS) located in northern Illinois. The majority of participants were male (73%) having an average age of just over 28 (with a range of 19 to 46 years of age). The majority of subjects were married (57%) and had at least two years of college experience (81%). These trainees displayed varied occupational backgrounds prior to their EMT-P (Emergency Medical Technician-Paramedic) training (i.e., retail sales, landscaping, trucking, bookkeeping, taxidermy, firefighting, hospital orderly, phlebotomist, auto mechanic, etc.). However, prior to their present training program all had to complete a three month junior
college EMT-A (Emergency Medical Technician-Aide) program providing basic instruction in life support measures (i.e., CPR, blood pressure measurement, bandaging, etc.). In order to continue with their EMT-P training, students had to be sponsored by either a municipality or a private ambulance service who would then employ them as paramedics once training was successfully completed.

The EMT-P training programs are certified by the Illinois Department of Public Health and administered under the medical direction of the area Project Medical Director (PMD). The training program itself is an intensive nine month experience providing classroom and clinical exposure. Students spend six hours a week in classroom lecture and additional hours per week in laboratory and field situations (amount of time depending on the activity). Students clinical activities include experience on the ambulance riding with veteran paramedics and observational experience in an emergency department. Upon completion of training, students must pass a state certification exam before being employed as a paramedic.

Description of Experienced Paramedic Subjects

Of the 69 subjects who participated in the quantitative portion of this study, 32 were paramedics with 1-7 years of experience. Ten of these 32 individuals were randomly chosen to be interviewed as part of the qualitative aspect of the investigation.
Geographically, this group of experienced paramedics came from one EMS system in northern Illinois. The majority of the subjects were male (94%) with an average age of just over 32 (with a range of 23 to 44 years of age). The majority of subjects were married (79%) and had at least two years of college experience (88%). Most subjects worked for municipal fire departments with only a few being employed by a private ambulance service. Tables 1-2 provide comparative summaries of the paramedic trainee group with the experienced paramedic group across selected demographic variables.

Table 1. A Comparative Summary of the Sample across Age, Gender, and Marital Status Variables

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Gender</th>
<th>Marital Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Range</td>
<td>M</td>
</tr>
<tr>
<td>Trainee Group</td>
<td>28.1</td>
<td>19-46</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(73%)</td>
<td>(27%)</td>
</tr>
<tr>
<td>Experienced Group</td>
<td>32.5</td>
<td>23-44</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(94%)</td>
<td>(6%)</td>
</tr>
</tbody>
</table>
Table 2. A Comparative Summary of the Sample Across the Years of Education Variable

<table>
<thead>
<tr>
<th></th>
<th>H.S. Graduate</th>
<th>Some College</th>
<th>College Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainee Group</td>
<td>7 (19%)</td>
<td>24 (65%)</td>
<td>6 (16%)</td>
</tr>
<tr>
<td>Experienced Group</td>
<td>4 (13%)</td>
<td>19 (59%)</td>
<td>9 (28%)</td>
</tr>
</tbody>
</table>

It should be noted that paramedics are essentially on call for a 24 hour period and then off for 48 hours. They must respond to any emergency call to which they are dispatched and provide appropriate field care. Calls for assistance run from those with only minor injury to extremely critical situations where such measures as cardiac life support, intubation, spinal immobilization, or the administration of medications must be administered accurately and efficiently. Two paramedics always ride together, remaining a team for six months or, in some cases, as long as two years.

Forty-five (45) paramedic trainees and 55 experienced paramedics were initially invited to participate in the study. Eighty-two (82%) or 37 paramedic trainee subjects and 58% or 32 experienced paramedic subjects agreed to participate in the study. Of the 33 paramedic trainees who successfully completed the program, 64% or 21 post-trained
Subjects agreed to participate in the second round of testing. All subjects asked to participate in the qualitative interview component of the study complied.

It is recognized that the inclusion of the experienced paramedic group in this study for the purpose of further comparison risks the possibility of introducing confounding individual difference variability not present in the pre-test/post-test trainee comparison groups. However, one can build a reasonably good case for the comparability of these two groups. All subjects participating in this study were selected from two northern Illinois EMS systems, thus, representing a defined geographic locale. Paramedics, by the nature of their work, tend to be a homogeneous group in terms of age (mid 20's to mid 30's), gender (male), economic status ($20,000-30,000 income), and education (two years or more of college). The majority also tend to be married. Most major demographic factors seem to fall within a limited range of variability. This documented homogeneity affords the advantage of increased control of individual differences across the two groups of subjects.

**Procedure**

**Data collection description for the pre-trained group**

Data was collected twice over a nine month period from the trainees, once during the first week of class and the second time during the last two weeks of class. Two EMS
training programs were sampled, thus, permission was obtained from both area Project Medical Directors to use their trainees as subjects. In addition, discussions were held with the supervisors directly responsible for the training of subjects in order to describe the proposed study to them and engage their cooperation. Class time was set aside by each supervisor for the presentation of the research plan to the prospective subjects. In these presentations students were asked for their voluntary participation in the study. They were assured that there would be no penalty for lack of participation. Issues of anonymity and confidentiality were also guaranteed. Careful verbal instructions were given regarding overall test completion as well as specific directions for individual questionnaires. The above information presented verbally to subjects was repeated in written form within the test packets as specified by the consent form, instruction sheet, and individual questionnaires respectively. Test packets were carefully collated to ensure identical presentation of materials to all subjects. Subjects were given one week to complete the packet of materials. The following week, the investigator collected the returned packets. Those subjects who had either forgotten their packets or who had not quite completed their questionnaires were encouraged to return them to the investigator the next week. Additional packets were collected at that time by the supervisors. This same
method of data collection, class presentation of verbal
instructions with an overall two week time span for packet
return, was followed for the second round of testing.

The qualitative information contained in this study
was collected via telephone interview. The Project Medical
Directors as well as the area EMS supervisors were consulted
as to their opinion regarding the best method of interview
data collection (either face-to-face or telephone contact).
All concurred that collection of data in a timely fashion
would be difficult with face-to-face interviews.
Interestingly, a special concern was expressed by many of
the respondents that less disclosure of information might
occur via face-to-face contact where some sense of personal
anonymity is perceived as lost. For these reasons telephone
interviews were conducted. Potential interviewees were
first contacted in person and invited to participate in the
telephone interview. Ten subjects were chosen for inclusion
from the pre-trained group on the basis of their
representativeness of the sample. All who were asked agreed
to be interviewed twice, prior to and on completion of
training, and to have the conversations tape recorded.
Subjects provided a convenient time to be contacted at home.
When called, none appeared to be pressed for time or
reluctant to speak. Interviews lasted from 15-30 minutes.
Though ten subjects were initially interviewed only nine
could be re-interviewed since one had been dropped from the
program.
Data collection description for the experienced paramedic group

After the first round of data collection of the trainee group was completed, data collection was begun for the experienced paramedics. This process was somewhat more segmented for the experienced paramedics than it was for the trainees. Though the paramedics who participated were all under the supervision of one Project Medical Director, they were employed by several different public and private agencies. Thus, contact had to be established individually through each agency. Permission was obtained from each agency supervisor to contact and request participation of their paramedics. Three municipalities and one private agency were used. Data collection procedures varied somewhat depending on the agency. Though all supervisors were extremely cooperative, personal contact with the paramedics was not always possible. One municipality had monthly group meetings where a presentation of the study to all paramedics was made possible. A second municipality, which had no group meetings, allowed for individual contact with paramedics to encourage participation. In a third municipality direct contact with subjects was not possible, however, the supervisor was highly supportive of the study. He took responsibility for describing the proposed research to the paramedics, distributing the test packets, and collecting the data. The one private agency used in the
investigation handled the data collection in the same responsible manner.

Only paramedics with greater than one year of experience were asked to voluntarily participate in the study. It was clearly conveyed that there would be no negative consequences related to choosing not to participate. Anonymity and confidentiality of responses were assured in all instances. Experienced paramedics received the same test packets as the trainee group, including all general and specific instructions for proper completion of test materials. Most questionnaires were returned within two weeks of distribution. In one municipality where returns were slow, gentle reminders regarding their return were issued.

The ten paramedics who were interviewed for the qualitative portion of the study were randomly chosen. All who were asked voluntarily agreed to participate and gave their permission to have the interview tape recorded. Due to the nature of paramedic work and the potential time lag between calls, it was possible to contact the paramedics while on shift. Permission for these telephone interviews was given by the Project Medical Director and area supervisors. A work schedule was obtained from the EMS office so as to appropriately contact potential interviewees. This proved to be a reliable method for communicating with subjects. Upon making contact with each
paramedic it was explained that they had been randomly chosen to be interviewed, participation was voluntary, and that permission had been obtained from their supervisor to participate on duty if no other responsibilities needed to be met. Most were able to be immediately interviewed. It was necessary to contact three subjects later in the day. None seemed reluctant to speak or to be particularly pressed for time. Interviews lasted from 20-30 minutes.

Instrumentation

The Antioch Sense of Humor Inventory (ASHI)-Part I
This test consists of 50 jokes set up to be evaluated on a Likert-type scale (5=enjoyed very much to 1=did not enjoy at all) for humor appreciation (Appendix A). There are 10 categories of jokes with 5 examples of each category. The 10 categories of jokes are nonsense, social satire, philosophical, sexual, hostile, demeaning to men, demeaning to women, ethnic, sick, and scatological. Jokes are in both word and cartoon format. Subjects are instructed to complete this questionnaire on an individual basis so as to not contaminate the responses of others. Also, they are instructed to try to complete the ASHI in one sitting and to be in as neutral a mood as possible. In the second round of testing subjects were again reminded of these instructions. Further, they were asked to respond to these items as if they were seeing them for the first time and not try to
remember what their first responses might have been. Both an overall humor appreciation score and individual category scores were computed for each subject. The statistical reliability of Part I is relatively high. The split-half coefficient was found to be .82 and the test-retest reliability over a two week period was found to be .88 (Mindess, et al., 1985). Additional information requested from respondents as part of this questionnaire were demographic data, favorite joke number, ratings of self as a humor appreciator, humor producer and overall funny person, and checking various descriptors which characterize their sense of humor. The ASHI was designed to contain jokes covering a variety of topics. Since not everyone may find them equally enjoyable, a descriptive statement to this effect was provided to all participants prior to the investigation.

The Occupational Coping Humor Scale (OCHS)

This is a short, six item Likert-type measure designed to assess the degree to which people report using humor as a means of coping with stressful occupational or school related experiences (Appendix B). Statements were written in both positive and negative forms so as to discourage extreme or acquiescent responding. Additional brief qualitative information was requested if subjects had personal experience in effectively using humor as a coping
mechanism. The general purpose of this measure was to obtain a subjectively reported, impressionistic response from the subjects regarding the importance of humor as an occupational coping mechanism. Though a statistical analysis was performed on this database, it was also meant to provide descriptive information through a content analysis of comments made regarding individual numerical responses.

It should be noted that this instrument was slightly modified from an original instrument designed by Martin and Lefcourt (1983). Their 7-item scale was devised to assess the degree to which subjects report using humor as a means of coping with stressful life experiences in general. No descriptive data was obtained in this instrument. Internal consistency analysis with the Martin and Lefcourt sample produced a Cronbach alpha of .61. Two modifications of the measure were made: 1) Specifically sampling the occupational aspect of humor coping by tailoring each statement to a job or school related situation and 2) providing descriptive data that substantiates or clarifies individual responses through comments elicited on each of the items.
**Peer Rating for Occupational Humor Coping**

This is a six item Likert-type scale which reflects the content, statement by statement, of the Occupational Coping Humor Scale (Appendix C). Subjects were asked to have two co-workers complete this instrument. Descriptive comments regarding the subject's use of humor occupationally or in school related situations was encouraged. Data from peer ratings were compared to the subject's own self-rating of occupational humor coping.

**The Life Experiences Survey (LES)**

This is a 47-item instrument designed to identify and measure life changes (Appendix D). It allows for the separate assessment of positive and negative life experiences as well as individualized ratings of the impact of events (from -3 to +3). The time period in which these events have occurred is also identified by the subject (0 to 6 months previous or 7 months to one year). Respondents are allowed to write in and rate stressful life events not included among the 47 items. Two test-retest reliability studies of the LES have been conducted (Sarason, Johnson, and Siegel, 1978). The coefficients for the total change score were .63 (p<.001) and .64 (p<.001). These findings suggest that the LES is a moderately reliable instrument especially when the negative change score (r=.88, p<.001) and the total change score are considered.
Cartoon Captioning

This instrument consists of six captionless cartoons (Appendix E). Hundreds of cartoons were reviewed in the development of this instrument. Approximately forty were chosen and categorized for suggestibility of response. Two raters then chose five cartoons upon the basis that 1) the cartoons were not too suggestive of a particular response category and 2) the content was not so obscure as to make a response difficult to create. Subjects were instructed to write what they thought were funny caption(s) for each cartoon. The sixth visual image was of a tombstone. Subjects were instructed to write a funny inscription for themselves. Captions were evaluated by two raters as to whether the content was sick or black. Sick or black humor was defined as any content reflecting death, disease, deformity, or grim, morbid intent. Interrater reliability was 86%.

Structured Interview

Nine to ten questions were put to a subset of participants from the pre-trained, post-trained, and experienced paramedic groups (Appendix F). These questions were designed to elicit the individual, social, and historical perspectives of the interviewee's personal humor use. Specific questions were intended to provide information regarding description and purposes of paramedic humor, peer and patient situational use, prevalent humor
types, changes in humor over the course of training and experience, the social nature of humor indoctrination, ranking humor among other coping mechanisms, the ability to share this particular humor with "outsiders", etc. Both open-ended and close-ended questions were used. Interviews were conducted by telephone at times designated as convenient by the subjects. Interview were approximately 20-30 minutes in length.

Consent Procedures and Safeguards

Approval was given by the Southern Fox Valley and the Northern Illinois Project Medical Directors to study the paramedic and trainee populations which they supervise. Approval was also received from municipal and private agency supervisors to use their paramedics as part of the study. Subjects were asked to participate voluntarily in this investigation. Written informed consent was necessary from each subject in order for them to participate in the study (Appendix G). There were no known potential risks (either physical, psychological, social, legal, or other) to subjects. In order to insure confidentiality, no name identification of individual subjects on test material was used. Only a coded master list, matching individuals with numbered test packets was kept. Interview data collected was only analyzed on a group basis, therefore, individual anonymity was assured. Subjects were allowed to withdraw at any time, for any reason, without penalty.
Design and Data Analysis

The overall analytic paradigm for this investigation is presented below:

<table>
<thead>
<tr>
<th>$X_1$</th>
<th>$X_2$</th>
<th>$X_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-trained group n=37 (phase 1)</td>
<td>Post-trained group n=21 (phase 2)</td>
<td>Experienced group n=32</td>
</tr>
</tbody>
</table>

Where: Independent variable = Levels of paramedic experience (pre-trained, post-trained, and experienced)

Dependent variables = Humor appreciation scores (ASHI - Part 1)
Humor production scores (ASHI - Part 2)
Occupational Coping Humor Scores (OCHS)

Quantitative analysis procedures including analysis of variance, correlational procedures, multiple regression, and principle components analysis were utilized to test the first four null hypotheses and to explore other interesting relationships discovered in the process of data collection. In addition, qualitative analysis procedures were used to describe and categorize data collected via interviews and the Occupation Coping Humor Scale.
Quantitative Analysis

A number of inferential statistical methods were used to analyze the quantitative data collected in this study. All statistical analyses were performed on a personal IBM computer using Version 4.0 of SYSTAT. Depending upon the question posed, appropriate statistical methods were chosen to provide the best approximation to a valid answer as well as reflect relationships which may be inferred from the data. Hypothesis 1 was crafted in an attempt to discover if there was a significant difference in the kind or amount of humor appreciated in the pre-trained vs. post-trained groups. T-tests were used to compare these groups on their total humor appreciation scores (ASHI) and specifically on their appreciation of sick humor. Similarly, null hypothesis 2 was directed at determining if there was a significant difference between pre-trained and post-trained groups with respect to their occupational humor coping. A t-test was also used here to compare the difference in means (on the Occupational Coping Humor Scale-OCHS) between these two groups. The third null hypothesis was designed to determine if positive or negative life stress events (as measured by the Life Events Survey-LES) affected humor appreciation, humor production, or humor coping across groups. This was an important independent variable to assess so as to gauge its potential influence on the dependent variable measures. Positive and negative LES
scores were each regressed upon ASHI, OCHS, and humor production scores in separate analyses. An analysis of variance was also computed for each relationship to test for its significance. Null hypothesis 4 was designed to discover if experience as a trained paramedic significantly affects scores on humor appreciation, production, or coping. F-tests were run comparing the means of the pre-trained, post-trained, and experienced groups on each of the dependent variable measures. Pairwise comparisons were then performed where a significant F value was obtained.

Though the above procedures describe statistical methods which specifically address testing the hypotheses of the study, there were many other engaging phenomena to explore in the data. Much was learned from running a simple Pearson correlation matrix on the entire set of data. From there, potentially interesting relationships were examined in greater detail measuring correlations between and across groups (e.g., correlation between the OCHS and humor production). Also, several interesting multiple regression procedures were employed. Multiple regression equations were computed for dependent variable measures in order to discover if a significant portion of variability could be accounted for by the independent variables being regressed in the equation. Another important addendum to the quantitative analysis involved running a principle components analysis on the Occupational Coping Humor Scale.
Rotated loadings were obtained for each question in a three component analysis. Finally, it should be noted that some of the data collected from the personal interviews was in a form appropriate for a quantitative analysis. Subjects were asked to rank coping strategies and frequency of humor use in several case situations. Frequency bar charts are used to display this data. Where appropriate, statistical procedures (repeated measures design, F-test, pairwise comparisons) are employed to analyze the data.

Qualitative Analysis

Information for the qualitative analysis came from two sources: the personal interviews conducted and the Occupational Coping Humor Scale. Data from these two sources was used to test null hypothesis 5. Subjects from the pre-trained, post-trained, and experienced paramedic groups were interviewed about their use of humor occupationally. Differences in the types of response and frequency of certain responses were evaluated. Important content issues explored were how, when, and for what purpose humor was used by each group, humor's relevance as a coping/defense mechanism for each group, and the possible change in humor style and function developed during and after paramedic training. Responses regarding the purpose of humor use were descriptively catalogued and then categorized into complementary groups according to function.
Other responses, which did not lend themselves to content categorization, were recorded descriptively with a frequency count tallied for various answers. Consistencies in the data are discussed for individual questions as well as for the treatment group as a whole. Comparisons between groups on the above content issues, highlighting differences and similarities are also systematically addressed in the following chapters.
CHAPTER IV

RESULTS

Introduction

This chapter is designed to present and analyze the data collected for this investigation. The chapter is divided into three sections. In the first section, results are organized in relation to testing each of the four null hypotheses this study was designed to test. The second section of this chapter presents a summary description related to a number of additional statistical procedures chosen to further explore and elucidate the data collected. In the third section of this chapter, a summary of results related to testing null hypothesis number five is presented. Qualitative data, collected through interviews and written comments, is described and, where appropriate, generally categorized so as to logically interrelate descriptive responses.

Section 1

Table 3 presents the minimum and maximum values, the means, and the standard deviations for the pre-trained (Group 1), post-trained (Group 2), and experienced (Group 3) groups on the seven dependent variables.
Table 3. Overview of Descriptive Statistics for the Major Dependent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group 1 n=37</th>
<th>Group 2 n=21</th>
<th>Group 3 n=32</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASHI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td>79</td>
<td>96</td>
<td>65</td>
</tr>
<tr>
<td>Max.</td>
<td>220</td>
<td>199</td>
<td>186</td>
</tr>
<tr>
<td>Mean</td>
<td>155.76</td>
<td>155.29</td>
<td>140.45</td>
</tr>
<tr>
<td>S.D.</td>
<td>28.43</td>
<td>29.42</td>
<td>32.62</td>
</tr>
<tr>
<td>SICKASHI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td>10</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Max.</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Mean</td>
<td>16.84</td>
<td>17.05</td>
<td>15.28</td>
</tr>
<tr>
<td>S.D.</td>
<td>3.18</td>
<td>3.19</td>
<td>4.50</td>
</tr>
<tr>
<td>OCHS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td>11</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Max.</td>
<td>23</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td>Mean</td>
<td>17.92</td>
<td>17.76</td>
<td>18.52</td>
</tr>
<tr>
<td>S.D.</td>
<td>2.94</td>
<td>3.24</td>
<td>3.09</td>
</tr>
<tr>
<td>NEGLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max.</td>
<td>41</td>
<td>27</td>
<td>38</td>
</tr>
<tr>
<td>Mean</td>
<td>7.81</td>
<td>8.91</td>
<td>5.66</td>
</tr>
<tr>
<td>S.D.</td>
<td>9.72</td>
<td>8.30</td>
<td>8.32</td>
</tr>
<tr>
<td>POSLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max.</td>
<td>38</td>
<td>27</td>
<td>23</td>
</tr>
<tr>
<td>Mean</td>
<td>8.44</td>
<td>6.86</td>
<td>8.86</td>
</tr>
<tr>
<td>S.D.</td>
<td>7.44</td>
<td>6.94</td>
<td>7.17</td>
</tr>
<tr>
<td>CAPTIONS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Max.</td>
<td>6</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Mean</td>
<td>4.65</td>
<td>4.48</td>
<td>5.76</td>
</tr>
<tr>
<td>S.D.</td>
<td>2.06</td>
<td>2.46</td>
<td>9.89</td>
</tr>
<tr>
<td>SICKCAPS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max.</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Mean</td>
<td>.54</td>
<td>.57</td>
<td>1.07</td>
</tr>
<tr>
<td>S.D.</td>
<td>.77</td>
<td>.75</td>
<td>1.07</td>
</tr>
</tbody>
</table>
Results Related to Testing Null Hypothesis 1

The first null hypothesis states that there is no significant difference in sense of humor scores (ASH! scores) across pre-training and post-training phases of the investigation. To test this hypothesis a t-test was performed comparing each group's ASHI mean scores. No significant difference was found between these means. Similarly, a t-test was performed comparing these two groups on a subset of the ASHI data comprised of only those jokes with "sick or black" content (SICKASHI). Again, no significant difference was found between the two group means. Thus, rejection of the first null hypothesis was not supported. The results of this analysis are presented in Table 4.

Table 4. Summary Table of T-Tests for the ASHI, SICKASHI, and OCHS Comparing the Pre-Trained (Group 1) and Post-Trained (Group 2) Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>S.D.</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (n=37)</td>
<td>155.76</td>
<td>28.43</td>
<td>.06</td>
<td>.95</td>
</tr>
<tr>
<td>ASHI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 (n=21)</td>
<td>155.29</td>
<td>29.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SICKASHI</td>
<td></td>
<td></td>
<td>-.24</td>
<td>.81</td>
</tr>
<tr>
<td>1 (n=37)</td>
<td>16.84</td>
<td>3.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 (n=21)</td>
<td>17.05</td>
<td>3.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCHS</td>
<td></td>
<td></td>
<td>.19</td>
<td>.85</td>
</tr>
<tr>
<td>1 (n=37)</td>
<td>17.92</td>
<td>2.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 (n=21)</td>
<td>17.76</td>
<td>3.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Results Related to Testing Null Hypothesis 2

The second null hypothesis states there will be no significant difference in humor coping scores (OCHS) across pre-training and post-training phases of the investigation. To test this hypothesis a t-test was performed comparing the means of the OCHS scores for these groups. No significant difference was found between these two group means. Thus, rejection of the second null hypothesis was not supported. The results of this analysis are presented in Table 4.

Results Related to Testing Null Hypothesis 3

Hypothesis 3 states there will be no relationships among measures of humor appreciation, humor production, and humor coping and life events' stress across the entire population of subjects. The first two hypotheses of this study were crafted to discover if paramedic training had a significant effect on humor appreciation or coping. The training experience, viewed as a stressful life event, is only one of many a subject may potentially experience. The inclusion of the third hypothesis in the investigation affords the opportunity to explore if the aggregate of other stressful life events (positive or negative) impacts upon the dependent measures. To test this hypothesis, negative and positive Life Experiences Survey (LES) scores were separately regressed upon the dependent variable measures, ASHI, OCHS, and # of Captions for the total population of
subjects (N=90). An analysis of variance was performed on each of these regressions to test for the significance of the relationships.

Positive stress, in all cases, did not prove to have a significant relationship to any of the dependent variable measures. Thus, neither high nor low amounts of positive stress seemed to affect scores of humor appreciation, humor coping, or humor production across groups.

Negative stress, when regressed upon the OCHS scores and number of captions produced, did not result in a significant relationship to either of these variables. However, negative stress was found to be significantly related to humor appreciation scores (ASHI) across the groups \( F[1, 88] = 6.56, p = .01 \). In light of this result it is important to explore if the groups differed significantly from one another on negative stress scores. (If so, this would somewhat confound the above finding.) An analysis of variance was performed examining the relationship between negative stress and group membership. No significant difference in negative stress scores was found across the groups \( F[2, 87] = .77, p = .47 \). Thus, high negative stress scores appear to have some correlation with high humor appreciation scores regardless of group membership. Partial rejection of null hypothesis 3 is supported by the relationship found between negative stress and humor appreciation. An analysis of the relationships
between negative stress scores (NEGLES) and humor appreciation (ASHI), humor coping (OCHS), and humor production (# of captions) scores are presented in Table 5.

Table 5. Summary Table of Regression Analysis between Negative Stress Scores (NEGLES) and the Dependent Measures, ASHI, OCHS, and # of Captions

<table>
<thead>
<tr>
<th>Independent/Dependent Variables</th>
<th>Std. Coef.</th>
<th>F</th>
<th>d.f. = 1,88</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEGLES/ASHI</td>
<td>.263</td>
<td>6.560</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>NEGLES/OCHS</td>
<td>.087</td>
<td>.675</td>
<td>.41</td>
<td></td>
</tr>
<tr>
<td>NEGLES/# of CAPTIONS</td>
<td>.139</td>
<td>1.736</td>
<td>.19</td>
<td></td>
</tr>
</tbody>
</table>

Results Related to Testing Null Hypothesis 4

Hypothesis 4 states there will be no significant differences in the humor appreciation scores, humor coping scores, and humor production scores across the pre-trained, post-trained, and experienced groups. This null hypothesis was tested in an attempt to discover if the inclusion of experienced paramedic subjects produced any significant differences among the three groups on the dependent variable measures. A one-way analysis of variance was performed across groups on five dependent measures (ASHI, SICKASHI, OCHS, # of Captions, and # of Sick Captions). Only # of Captions and # of Sick Captions produced were found to be
significant at the .05 level. A summary of these analyses of variance results is presented in Table 6.

Though the number of captions and the number of sick captions produced were found to be significant in terms of group membership, the overall analysis of variance results do not specifically tell us where these significant differences exist across groups. Post hoc, pairwise comparisons were performed on the data in an attempt to demonstrate between which groups these differences might exist. Results of these comparisons are presented in Tables 7 and 8. As might be expected, no significant differences were found for these two dependent variables (# of captions and # of sick captions) between groups 1 and 2. However, for comparisons between groups 1 and 3 and groups 2 and 3, significant results were found at the .05 level for both the number of captions and the number of sick captions produced. A partial rejection of null hypothesis 4 is thus supported by the significant group differences found for two (captions and sick captions produced) of the five dependent measures.
Table 6. Summary of Analyses of Variance Results Measuring Differences among Groups 1, 2, and 3 on Five Dependent Variables (ASHI, SICKASHI, OCHS, # of Captions, and # of Sick Captions)

<table>
<thead>
<tr>
<th>Independent/Dependent Variables (N=90)</th>
<th>R^2</th>
<th>F-RATIO df=2,87</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUPS/ASHI</td>
<td>.239</td>
<td>2.639</td>
<td>.077</td>
</tr>
<tr>
<td>GROUPS/SICKASHI</td>
<td>.216</td>
<td>2.133</td>
<td>.125</td>
</tr>
<tr>
<td>GROUPS/OCHS</td>
<td>.080</td>
<td>.279</td>
<td>.757</td>
</tr>
<tr>
<td>GROUPS/# OF CAPTIONS</td>
<td>.300</td>
<td>4.312</td>
<td>.016</td>
</tr>
<tr>
<td>GROUPS/# OF SICK CAPTIONS</td>
<td>.292</td>
<td>4.060</td>
<td>.021</td>
</tr>
</tbody>
</table>

Table 7. Post Hoc Comparisons of Differences Among Groups 1, 2, and 3 for the Dependent Variable, # of Captions

<table>
<thead>
<tr>
<th>Comparison</th>
<th>F</th>
<th>df = 1, 87</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups 1 &amp; 2 (n=58)</td>
<td>.112</td>
<td></td>
<td>.735</td>
</tr>
<tr>
<td>Groups 1 &amp; 3 (n=69)</td>
<td>6.359</td>
<td></td>
<td>.013</td>
</tr>
<tr>
<td>Groups 2 &amp; 3 (n=53)</td>
<td>6.239</td>
<td></td>
<td>.014</td>
</tr>
</tbody>
</table>
Table 8. Post Hoc Comparisons of Differences Among Groups 1, 2, and 3 for the Dependent Variable, # of Sick Captions

<table>
<thead>
<tr>
<th>Comparison</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df = 1, 87</td>
<td></td>
</tr>
<tr>
<td>Groups 1 &amp; 2 (n=58)</td>
<td>.017</td>
<td>.896</td>
</tr>
<tr>
<td>Groups 1 &amp; 3 (n=69)</td>
<td>7.023</td>
<td>.010</td>
</tr>
<tr>
<td>Groups 2 &amp; 3 (n=53)</td>
<td>4.626</td>
<td>.034</td>
</tr>
</tbody>
</table>

Section 2

A great deal of supplemental data was collected in this investigation, much more so than is reflected in the preceding section. This data was reviewed for the purpose of selectively choosing potentially interesting and reportable relationships that might clarify or expand upon information already presented in this study. A number of different statistical procedures were used to appropriately analyze the relationships chosen for examination. This section will present the rationale for particular relationships chosen for study, the statistical procedure used for analysis, and the results of these analyses.
Pearson Correlational Matrices

First, a Pearson correlation matrix was generated on all of the independent and dependent variables included in this study for Groups 1 and 3. Then, separate matrices for Groups 1 and 3 were generated to examine if correlations between groups differed. An examination of these matrices yielded some interesting relationships. An analysis of variance was performed on each of these correlations to test for their statistical significance. It should be noted that Group 2 was excluded from this analysis since the same subjects comprise Group 1 and their dependent measure scores changed very little across the pre- and post-training phases of the investigation. Tables 9 and 10 summarize the correlations and their significance for the experienced paramedic subjects (Group 3) and the pre-trained subjects (Group 1).
### Table 9. Summary Table of Selected Correlations and Analyses of Variance for the Experienced Paramedic Subjects (Group 3)

<table>
<thead>
<tr>
<th>RELATIONSHIP</th>
<th>$R^2$</th>
<th>F-RATIO</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASHI to OCHS</td>
<td>.470</td>
<td>8.506</td>
<td>.007</td>
</tr>
<tr>
<td>ASHI to Peer Rating of OCHS</td>
<td>.517</td>
<td>10.945</td>
<td>.002</td>
</tr>
<tr>
<td>SICKASHI to OCHS</td>
<td>.412</td>
<td>6.143</td>
<td>.019</td>
</tr>
<tr>
<td>SICKASHI to Peer Rating of OCHS</td>
<td>.555</td>
<td>13.365</td>
<td>.001</td>
</tr>
<tr>
<td>OCHS to Self Rating as a HUMOR PRODUCER</td>
<td>.619</td>
<td>18.654</td>
<td>.000</td>
</tr>
<tr>
<td>Peer Rating of OCHS to Self Rating as a HUMOR PRODUCER</td>
<td>.496</td>
<td>9.775</td>
<td>.004</td>
</tr>
<tr>
<td>OCHS to Peer Rating of OCHS</td>
<td>.480</td>
<td>8.970</td>
<td>.005</td>
</tr>
<tr>
<td>RELATIONSHIP (N=37)</td>
<td>$R^2$</td>
<td>F-RATIO df=1,35</td>
<td>$P$</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------</td>
<td>-----------------</td>
<td>------</td>
</tr>
<tr>
<td>ASHI to OCHS</td>
<td>.127</td>
<td>.578</td>
<td>.452</td>
</tr>
<tr>
<td>ASHI to Peer Rating of OCHS</td>
<td>.167</td>
<td>1.001</td>
<td>.324</td>
</tr>
<tr>
<td>SICKASHI to OCHS</td>
<td>.284</td>
<td>3.061</td>
<td>.089</td>
</tr>
<tr>
<td>SICKASHI to Peer Rating of OCHS</td>
<td>.272</td>
<td>2.792</td>
<td>.104</td>
</tr>
<tr>
<td>OCHS to Self Rating as a HUMOR PRODUCER</td>
<td>.494</td>
<td>11.316</td>
<td>.002</td>
</tr>
<tr>
<td>Peer Rating of OCHS to Self Rating as a HUMOR PRODUCER</td>
<td>.207</td>
<td>1.568</td>
<td>.219</td>
</tr>
<tr>
<td>OCHS to Peer Rating of OCHS</td>
<td>.339</td>
<td>4.555</td>
<td>.040</td>
</tr>
</tbody>
</table>

There are a number of interesting differences between the correlational relationships of these two groups. First, a significant correlational relationship was found between humor coping scores (OCHS) and humor appreciation scores (both total ASHI and SICKASHI content) for the experienced paramedic group only. For the total ASHI variable, the experienced groups' OCHS scores were found to be significantly related at the $p = .01$ level. For the SICKASHI content, significance was found at the $p = .02$
level. Also, highly significant, were the relationships between peer ratings of the OCHS and the ASHI and SICKASHI for the experienced paramedic group. These correlations were found to be significant at the $p = .01$ level.

One of the only correlations which proved to be highly significant for both groups was the relationship between OCHS scores and subjects's self-rating as a humor producer. For the experienced paramedic group, the Pearson correlation was .62, which is significant at the .001 level. The Pearson correlation for the pre-trained group was .49, significant at the .005 level. However, only in the experienced paramedic group did peer ratings of the OCHS significantly correlate with subject's self-ratings as humor producers.

One other important correlation examined was the relationship between the subject's OCHS scores and the peer ratings of the OCHS. Though this relationship proved to be significant in both groups ($p = .005$ for the experienced group and $p = .04$ for the pre-trained group), the correlation was stronger in the experienced group (.48) than in the pre-trained group (.34). The ability of co-workers to have worked closely with subjects in order to evaluate their use of humor for coping, may be both quantitatively and qualitatively different between these two groups. This premise is further explored in the next chapter.
In examining the relationships of demographic variables to the dependent measures, a Pearson correlation matrix was generated combining Groups 1 and 3. It should be noted that the overall effects of independent demographic variables on dependent variables are of special interest here, not group membership. Most of the demographic variables (age, sex, marital status, number of children, and education) did not yield any significant relationships with the dependent variables. There were two correlations, however, worthy of note. Marital status appears to demonstrate significant relationships with the OCHS ($R^2 = .34$) and the self-rating as a humor producer ($R^2 = .32$). Both of these relationships were significant at the .01 level. (That this finding implies that marriage requires an "active" sense of humor is left to the mind of the reader.)

Further consideration should be given to address the question, "What effect do other independent variables and combinations of these variables potentially have on the dependent variable measures?" The other independent variables of concern here are age, sex, marital status, number of children, level of education, and amount of negative stress as measured by the LES. Significant findings between one or more of these independent variables and a dependent variable will tend to confound the case where a significant relationship exists between group membership and that dependent variable measure. A lack of
significant findings between the independent variables and a dependent variable conceivably strengthens the case where group membership and that dependent variable are found to be significantly related. Even if no relationship exists between group membership and a dependent variable, significant relationships between other independent variables and dependent variable measures may still be of interest to report.

**Multiple Regression Analyses**

A multiple regression analysis was performed on each dependent variable to test if significant amounts of variance were accounted for by the independent variables stated above. This process was two-fold in that, first, all independent variables were regressed upon a dependent variable. Since several of the independent variables proved to be highly insignificant they were then deleted from the equation and only the three most significant were retained. Results of these multiple regression analyses are presented in Tables 11 - 13.
### Table 11. Multiple Regression Analysis for the Dependent Variable, ASHI

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>STD. COEF.</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEGLES GROUP</td>
<td>0.173</td>
<td>1.457</td>
<td>.150</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.173</td>
<td>-1.380</td>
<td>.172</td>
</tr>
<tr>
<td></td>
<td>-0.158</td>
<td>-1.243</td>
<td>.218</td>
</tr>
</tbody>
</table>

\[ R^2 = .350 \quad F-RATIO = 3.023 \quad P = .036 \]
\[ df = 3,65 \]

### Table 12. Multiple Regression Analysis for the Dependent Variable, OCHS

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>STD. COEF.</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARITAL STATUS</td>
<td>.343</td>
<td>2.931</td>
<td>.005</td>
</tr>
<tr>
<td>GROUP</td>
<td>.144</td>
<td>1.232</td>
<td>.222</td>
</tr>
<tr>
<td>NEGLES</td>
<td>.127</td>
<td>1.095</td>
<td>.278</td>
</tr>
</tbody>
</table>

\[ R^2 = .382 \quad F-RATIO = 3.704 \quad P = .016 \]
\[ df = 3,65 \]
### Table 13. Multiple Regression Analysis for the Dependent Variable, CAPTIONS

<table>
<thead>
<tr>
<th>VARIABLE (N=69)</th>
<th>STD. COEF.</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP</td>
<td>.325</td>
<td>2.791</td>
<td>.007</td>
</tr>
<tr>
<td>NEGLES</td>
<td>.164</td>
<td>1.412</td>
<td>.163</td>
</tr>
<tr>
<td>LEVEL OF EDUCATION</td>
<td>.124</td>
<td>1.060</td>
<td>.293</td>
</tr>
</tbody>
</table>

\[ R^2 = .397 \]
\[ F-RATIO = 4.062 \]
\[ df = 3,65 \]
\[ P = .010 \]

An examination of Table 11 reveals an interesting anomaly. Though none of the individual independent variables have a T-value significant at the .05 level, in combination they produce a significant F-value (p = .036). Cohen and Cohen (1983, p.175) address this problem stating, "This is apparently an inconsistency, because the significant F's message is that at least one of the IV's (independent variables) has a nonzero population partial coefficient, yet each t finds its null hypothesis tenable. A technically correct interpretation is that collectively there is sufficient evidence that there is something there, but individually, not enough evidence to identify what it is".
Part of the explanation for this finding is perhaps due to the variance that group membership and age share. They are significantly correlated at the .01 level ($R^2 = .38$). Taking a glance back at Table 6, had the F-value measuring group differences for ASH1 scores been significant, this result would have been confounded by a significant age difference between Groups 1 and 3 ($T = -3.31$, $p = .002$). Thus, Group 3 subjects tend to score lower on the ASH1 but they also are significantly older. A weaker correlation exists between negative stress scores and age ($R^2 = .20$, $p = .10$). However, probably just enough variance is shared to produce individually insignificant T values.

In Table 12 a particularly interesting finding is seen in the Pearson correlations. Marital status (being married) appears to account for a significant amount of variance in the OCHS scores ($T = 2.93$, $p = .005$). The combination of marital status, group membership, and negative stress account for a significant amount of variance in the OCHS scores at the .02 level ($R^2 = .38$).

Table 13 also reveals a significant amount of variance accounted for in the dependent variable, number of captions, by the independent variables, group, negative stress, and level of education ($R^2 = .40$, $F = 4.06$, $p = .01$). However, group membership was found to be the only significant T-value ($p=.007$). This result is in accord with the previous
analysis of variance finding that a significant difference exists among groups on the captions variable.

Principal Components Analysis of OCHS Scores

The last statistical procedure to be discussed in this section is a principal components analysis performed on the OCHS scores. The OCHS is a hybrid questionnaire in that it is modified from a general coping humor scale used by Martin and Lefcourt (1983). The OCHS scores reflect occupational coping. Thus, it is important to evaluate how many components are reflected in the OCHS scores and which questions are grouped together to form components. Table 14 shows the rotated loadings for questions 1 - 6 on the OCHS scores. For the first component, questions 2, 3, and 6 demonstrate reasonably high loadings. Statement 4 alone comprises the second component. For the third component statements 1 and 5 load relatively high. Together these three components explain approximately 71% of the variance in this model. In the next chapter some theoretical consideration will be given as to why these components may exist and their impact on the questionnaire's reliability.
Table 14. Principal Components Analysis for the OCHS

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>COMPONENT 1</th>
<th>COMPONENT 2</th>
<th>COMPONENT 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCHS 1</td>
<td>.082</td>
<td>.215</td>
<td>.825*</td>
</tr>
<tr>
<td>OCHS 2</td>
<td>.787*</td>
<td>-.089</td>
<td>.053</td>
</tr>
<tr>
<td>OCHS 3</td>
<td>.538*</td>
<td>.389</td>
<td>-.446</td>
</tr>
<tr>
<td>OCHS 4</td>
<td>-.131</td>
<td>.907*</td>
<td>.157</td>
</tr>
<tr>
<td>OCHS 5</td>
<td>-.349</td>
<td>-.021</td>
<td>.767*</td>
</tr>
<tr>
<td>OCHS 6</td>
<td>.769*</td>
<td>-.084</td>
<td>-.237</td>
</tr>
</tbody>
</table>

% OF TOTAL VARIANCE EXPLAINED

27.43  17.28  25.87

Section 3

This section is designed to summarize the findings related to testing the fifth null hypothesis which states, "There will be no qualitative data discovered to support the notion that one's sense of humor can be used as a coping/defense mechanism in response to the paramedic experience". First, data will be presented that was gathered from the interviewed subjects. Next, a summary of written comments will be reviewed from those subjects who chose to respond on the Occupational Coping Humor Scale.
Interview Data

The data described below was collected by means of a structured interview format. The pre-trained subjects consisted of ten interviewees chosen as representative of the larger group. These individuals possessed a variety of occupational backgrounds both health and non-health related. Two out of the ten subjects had or have jobs involving direct care to hospitalized patients while a third works as a dispatcher for an ambulance company. Interviewees also varied in the amount of primary emergency medical technician (EMT-A) experience they possessed. The extent of EMT-A experience ranged from less than six months to three years. The average number of years of EMT-A experience was approximately 1.3. Of the ten interviewees, five had greater than one year of EMT-A experience and five had less than one year. The total number of ambulance calls participated in by subjects ranged from 0 to over 200. Five subjects had less than 100 calls, while five had greater than 100. In general, those individuals who possessed greater amounts of patient care or ambulance experience produced descriptive responses similar to experienced paramedics.

The post-trained group of interviewees consisted of nine of the ten original subjects. One subject was dropped from the program. Subjects were interviewed approximately nine months after their initial interview.
The experienced paramedic subjects consisted of ten interviewees chosen randomly from the larger group. The extent of paramedic experience ranged from one to seven years with an average of four years of field experience.

Descriptive data from each group will be presented on a question by question basis so as to best facilitate a comparative analysis of responses. Statements are, for the most part, verbatim comments from the interviews. Numbers given in parentheses after a statement indicate the number of subjects who made that particular comment.

**Question 1 for the pre-trained group:** Do you use humor to cope with the stress of your current job? How is it helpful?

Six of ten subjects responded yes. The most often repeated statement was that humor was helpful in relieving tension (5). Situationally, humor was identified as being used after a particularly tense situation to relieve group stress (3) or on an especially busy or bad day. Several statements were made with regard to humor's use to affect emotional or cognitive refocusing; laughter relieves one from depressing thoughts and emotions (2), "humor allows you to calm down, regroup yourself, and start all over", "it gives you a mental break [so as] to get hold of your senses", and "humor allows you to forget the last situation and go on to the next". In terms of a more pure affective release of tension
and anxiety, engaging in humor use was identified as "refreshing and relaxing". The issue of mastery was alluded to in one subject's statement in that humor helps make continuing performance competent. In a more philosophical vein, it was suggested by an interviewee that a general attitude of "not taking things too seriously was important [so as] not to develop tunnel vision". Another subject found humor to be a good social lubricant in dealing with clients.

Four of the ten interviewees indicated that either they did not use humor to cope with the stress of their job or infrequently used it. Several reasons were given for the lack of humor use; the job was not seen as particularly stressful (3), being one's own boss was a stress reducer (2), the content of the job was viewed as very serious, and humor was not used as a personal method of tension relief.

Question 1 for the post-trained group: Did you use humor to cope with the stress of your paramedic training? How was it helpful?

Eight of nine subjects responded yes. Several subjects found humor helpful in clinical situations (5). In terms of pure tension/anxiety release, "humor takes the pressure off of tense situations" (codes and trauma) (3), "it helps you to relax", "things go alot easier - you're more laid back", and humor helps relieve the tension due to the length of training. Emotionally, "the joking around keeps you going,
it keeps you're spirits up". Humor was also identified as pure play in that it makes the time go by, "it's more fun, not as boring". Socially, participating in EMS humor was helpful for "fitting in" with emergency personnel.

Several subjects also found humor helpful in the classroom (6). Cognitively, humor was reported to be helpful with boring or hard subjects (4) in that "it seems to break it into smaller segments" and it helps to increase attentiveness in class. Affectively, it was reported to be a tension reliever due to all the hours spent absorbing information presented so rapidly as well as easing one's mind after quizzes.

It should be noted that three subjects felt that their humor use did not differ from the time when they were first interviewed. The only change in use seemed to apply to the classroom where humor helped to deflect the anxiety of learning massive amounts of information. Three other subjects felt their humor use was different now than when last interviewed. Two of these subjects thought their exposure to stressful clinical situations and the "subculture" of EMS humor increased their use of humor for stress coping. The third subject felt more relaxed with emergency personnel, thus, an increase was identified in the social use of humor within that group. It should be noted that those individuals who previously viewed humor as a tension/stress reducer, still do. Thus, their view is that
their use of humor is fairly similar to the time of their first interview.

One subject denied using humor to cope with the stress of training. This individual did not think of their paramedic training as being particularly stressful nor did this subject observe a "humor subculture" among EMS personnel. Similar to the first interview this individual does not describe using humor to relieve personal tension and/or stress.

**Question 1 for the experienced paramedic group:** Do you use humor to cope with the stress of your job? How is it helpful?

All ten of the interviewees responded yes. In terms of a general affective release, humor use was identified as relieving tension and anxiety (3). However, many of the comments made by experienced paramedics focused on the use of humor for emotional and cognitive refocusing. The most frequently made statement was that "humor allows you to forget", to not obsess and rehash about a call (5). In this same vein, humor is used after an especially bad call (2) - "Everyone makes jokes . . . you make fun of a bad call so you can get over it". Towards this same purpose humor use was described as being able to "change your train of thought", it can "change what you've dealt with into a positive thing", it helps defend against so much seriousness inherent in the job (3). Though the idea of distancing or
objectification of the experience may be implied in the above statements, one subject explicitly stated that "humor gives you a mental break, it gets you away momentarily from the situation you are involved in". The concept of mastery over self and the environment is suggested in statements where humor use is identified as helping to make light of death and dying (2) and "allowing you to go on to the next task and be effective". One subject suggested that there is a need to deal with the stress of a difficult call and "since the guys don't want to talk about it, humor is used".

**Question 2:** Which of the following humor types do you and your fellow co-workers/students/paramedics tend to use most often? Sick or black, sexual, ethnic, nonsense or hostile/put-down. (If a subject was unable to choose just one, then a half point was given to each of the two choices).

<table>
<thead>
<tr>
<th></th>
<th>Sick</th>
<th>Sexual</th>
<th>Ethnic</th>
<th>Nons.</th>
<th>Hostile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1</strong></td>
<td>1.5</td>
<td>3.0</td>
<td>1.5</td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Pre-trained</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>2.5</td>
<td>2.0</td>
<td>1.5</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Post-trained</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Group 3</strong></td>
<td>5.0</td>
<td>1.0</td>
<td>.5</td>
<td>2.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Experienced</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen, the use of sick humor is reported to increase fairly dramatically from the pre-trained to the experienced phase. This change is elaborated on by subjects in the next question.
**Question 3:** Do you share this type of humor with family and friends? On the whole, do they enjoy this humor? Do you find this brand of humor job specific?

In the pre-trained group of interviewees eight subjects stated that they could share the humor type identified in Question 2 with their family and friends. These same eight felt that on the whole this humor was enjoyed by those with whom it was shared. Only two subjects identified their humor choice as job specific and, thus, do little or no sharing with family or friends. One of these subjects, an ambulance dispatcher, stated that others may not understand the experience upon which the humor is based. The other subject, a taxidermist, felt the unusual nature of his work did not facilitate the sharing of job-related humor.

In the post-trained group the numbers change somewhat. Five subjects stated they do little or no sharing of the humor identified in Question 2 with family and friends who do not have EMS experience. One reason given for this is related to the element of timing - the humor happens instantaneously, it fits in with the situation, thus, it becomes difficult to explain out of context (2). Another reason was that people not in EMS would not understand the laughter about what they are dealing with, one must be familiar with the experience in order to enjoy the humor (2). In contrast, four subjects stated they could share
their humor choice with family and friends and that it was enjoyed by them. One subject did qualify his response by stating that family and friends would enjoy the humor if they could relate to it or that he might have to explain the "medical humor". There was a varied response as to whether the humor used among the student group was job specific. Four responded that the humor used was job specific, while two stated it was not. Three subjects felt the humor used could be both job and non-job specific. For example, if the humor was related to a medical topic or situation then "you would have to be there to understand it".

Among the experienced paramedic group there was unanimous agreement that "paramedic" humor was not shared with family and friends - it is a job specific humor. One can only share that humor with family and friends which would be understandable to them. It might be possible to share paramedic humor with others who have had similar experiences (e.g., emergency room staff, police). Several reasons were given for this lack of sharing with family and friends; they would have difficulty relating to paramedic humor not having participated in a particular emergency situation nor having experienced the thoughts and feelings evoked (3), they would "not appreciate it or get the point", it would not be taken in the same context. Another reason given is that the sick humor used is very job specific and it is only related to the situation at the time. If shared
with family and friends "they would think you were sick"
(2). A third reason is related to the timing of the humor.
Job-related humor is seen as a spontaneous event, if one is
not there to see the situation then the humor is lost later
(2). It would not be appropriate to share the humor later
since the crisis has already passed. "The joke doesn't come
out the same." At the time of the crisis, "humor helps you
get rid of feelings . . . Later [upon recollection], you may
just feel bad about the call".

Question 4 for the pre-trained group: Is your use of humor
different in this job than it was in previous ones? How?

Eight subjects reported that their previous job
differed in some significant way from the current one, thus,
their humor use was different. Two subjects reported that
the type and amount of humor they now use is basically the
same as in their previous (similar field) job. The different
job conditions reported by the eight subjects, with their
concomitant effects on humor, were as follows:

• The previous job had more stress and pressure.

For one subject an increased use of ethnic, sexual,
and sick humor provided "more of a relief" from job
stress. Another subject reported that a greater use
of sick humor eased the tension of working with
nursing home patients. Humor was also used with
patients to help them feel at ease. A former
emergency orderly described a much greater use of humor of all kinds due to the stress of the job as well as the milieu created by co-workers.

• The social environment of the previous job was different. Two subjects reported greater contact with the general public in their previous job. The use of non-objectionable humor, such as nonsense, was increased under these circumstances. Another subject reported that the social make-up of his co-workers was different (mostly young and single), thus, there was a greater use of sick, ethnic, and sexual humor. A more serious attitude by co-workers was reported by one subject as decreasing the amount of humor used on the job.

• The subject's personal adjustment has changed. One subject reported that his "personality changed with the job change". In the previous position he felt more relaxed and was able to use more humor. In that he is relatively new in his current position, he feels quite shy, "just learning the ropes", and does not wish to offend anyone, therefore, his humor use has greatly decreased.

Question 4 for the post-trained group: Did your sense of humor change between the beginning and the end of training? If so how?
Six subjects responded that they felt their humor use changed between the beginning and end of training. Several identified a subculture of EMS humor that influenced this change. "As you get to know more EMS people a pattern of humor comes out that you plug into . . . the more you are surrounded by those people the more you pick up that personality". With the increased use of humor in this environment "it becomes easier to make a joke and see the lighter side of things - you can more easily adapt to a situation". It was suggested that this humor was picked up informally through the association with EMS personnel. One subject observed a pattern of interacting, "a family attitude, you get to know people and you open up a little bit". Two subjects felt their humor changed as influenced by their social comfort and interaction. They felt more relaxed with the people in class or clinical and could "open up more, be more free-flowing". One other subject identified that he was using humor more now in order to specifically deal with classroom stress. Three subjects responded negatively to this question, they did not feel their humor use changed during training. One subject, however, qualified their statement in that due to their previous emergency experience a change in humor use had already occurred.
Question 4 for the experienced paramedics: Did your sense of humor change between the beginning and the end of training? How? Did it change with further experience?

Of the ten paramedics interviewed, five thought their sense of humor changed after training, not before, with all five noting an increase of sick humor use and two noting an increase in overall humor use. Reasons for this judgment appear related to lack of exposure and experience during training. "After training you are exposed to more situations to use it in." "The sickest humor is used when you first start out as a paramedic, when things bother you the most. . . . When you're under the most stress, you use the most humor." In contrast, three paramedic subjects stated that their sense of humor changed during training and leveled off with experience. Of the three, two thought their use of sick humor increased. Two of these same three also thought their overall use of humor increased. Reasons for this opinion suggest that while in training these subjects were developing a method of coping with the stress inherent in the job. "During training you're also training yourself how to deal with the stress. . . . you get conditioned to cope." "At first you don't know what to expect, you're in awe of everything. . . . You see more and more, things start to build up inside, so you play it off with humor." Two paramedic subjects thought both training and experience changed their sense of humor, though with
greater emphasis on the experience portion. Of the two, both thought their overall humor use has increased while one also noted an increase in sick humor use.

**Question 5 for the post-trained and experienced groups:** Did the sense of humor in others in your training group change? If so, was this formally taught or informally picked up from more experienced emergency personnel? Did most students participate in this use of humor? If they didn't, were they accepted? Did they seem to perform as well? Did they seem more stressed?

Six subjects in the post-trained group responded that the sense of humor in others in their group changed while in training. Four of these six attributed the change to greater social comfort in the student group and increased ease of social interaction. Statements focused on the social aspects of getting to know one another with the result being "people can open up more, they react more, everybody lightens up and relaxes . . . there's lots of joking in class". The other two who noted a change in the group stated it was "picked up" from the more experienced staff they were exposed to clinically. All six felt that whatever humor change had occurred, it was part of an informal process. Three subjects responded that they did not observe any change in the sense of humor of fellow students. Reasons were varied for the negative responses.
One subject attributed the lack of change to either "everyone being nervous or frustrated" or group members' similar personality type. A second subject noted no overall change but observed that the students seem less light-hearted at the end of training perhaps due to upcoming tests. When asked, the third subject who responded negatively, was unable to identify or distinguish any exposure to an "EMS humor subculture".

Among the post-trained group there was almost unanimous agreement that most students did participate in general humor use. Those who participated less still seemed to perform adequately nor did they seem overly stressed. Two subjects suggested that everyone deals differently with stress, thus different methods of tension release are used. "Humor may or may not work for a particular individual" or perhaps if they are not demonstrative, "they are just laughing on the inside".

The experienced group of paramedics, on the whole, was unable to answer whether the humor of others in their training group had changed. They stated that either it was too difficult to form an opinion retrospectively or they were unable to keep track of those with whom they had trained. There was virtually unanimous agreement among this group that EMS humor was informally picked up from more experienced emergency personnel. It occurs as part of the socialization process. "You learn that it is acceptable to
joke about sick things." Several subjects identified the existence a subculture whereby humor is handed on with each group. "During the training experience, by riding with other paramedics, humor is handed on like a trait . . . but there is still individual expression of different humor types." One subject did, however, staunchly state that though he heard more experienced paramedics use sick humor, he reacted individually and developed it himself; it was not picked up from others or taught, "it's just how each person deals with it . . . I just think humor is a natural defense to use in this situation to release stress and tension. . . It develops due to exposure to cases, its not learned from others".

There was unanimous agreement among the experienced paramedic subjects that most of their co-workers do participate in "stress release" humor to some degree. There is, however, a small percentage who do not. Several subjects felt that newer paramedics often temporarily fall into this category. "The newer ones may be awestruck at times and feel very responsible and serious." Several subjects were unable to form an opinion as to whether their more serious co-workers perform their job as well. One less experienced paramedic stated, "How stress is handled depends on the person, everybody can do a good job in their own way . . . the older guys know how to deal with it because they have seen it so much". One subject, referring to an
experienced though humorless co-worker, thought he could not perform his job as well. Another felt that job performance without humor could be adequate though one would be under greater stress. Several subjects felt that their more serious co-workers did appear more stressed. "They seem to have shorter tempers, to take things to heart, they're more touchy . . . They carry it over too much to time off and are more high strung." Several subjects similarly commented that if you are more relaxed you are able to function better and "humor helps you relax, it provides a relief outlet".

Question 6 for the post-trained and experienced groups: Do you use humor with patients? In what situations? How is it helpful?

In the post-trained group, almost all subjects responded that they did use humor with patients. The most frequently cited reason for its use was that it helps to put the patient at ease and relieve their anxiety (4). Other reasons given were that humor helps to put the paramedic at ease (2), it establishes a human-to-human relationship with the patient (2), humor helps take the patient's mind off of their problems, and it is a social "ice-breaker" with patients. Some post-trained subjects identified particular kinds of patients for whom they found humor use to be helpful in their care. Those identified were younger patients (teens and young adults), older patients, fearful
patients and their families, quiet or, in contrast, overreacting patients, and a parent bringing in a sick child. Only one subject in the post-trained group stated that most of the time he was relatively serious with patients, using humor only infrequently.

In the experienced group of paramedics eight subjects reported generally using humor with patients in a somewhat routine manner rather than applied to particular patients or situations. Reasons cited for humor use were that it relaxes patients and helps to put them at ease, it builds trust, humor helps break the seriousness of the mood, and it functions to relax the paramedic. It was pointed out that the humor used with patients is "very clean" and unoffensive, unlike what a paramedic may share with his co-workers. In contrast, one of the younger paramedics interviewed stated he did not use humor with patients. This individual described himself as being "very serious and honest with patients and having lots of feelings for them". Another young paramedic stated that he may only use humor in very limited situations or with a certain type of case (e.g., "repeater").

Question 7 for the post-trained and experienced groups: Rank the following clinical cases with either a 1, 2, or 3 rating (1 = rarely, 2 = sometimes, 3 = often) for how frequently you and the people you've worked with might have used humor
about these cases after the call. Tables 15 and 16 present post-trained and experienced subjects' responses, to the clinical cases. Figures 1-7 display the frequency of responses comparing these two groups on each of the seven selected cases.

Table 15. Post-Trained Subjects' Ratings of Humor Use for Selected Clinical Cases

<table>
<thead>
<tr>
<th>Subject Responses</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very sick child (5 yr. old with croup)</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Psychiatric patient (schizophrenic)</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Code in an 80 yr. old</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Code in a 20 yr. old</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Bad auto accident with minor injuries</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Repeater (street person, probably alcoholic)</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>M.I. in a 50 yr. old man</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

In what other situations is humor most helpful?
The responses of the post-trained group to this question ranged from those situations considered to be mundane to those considered extremely serious. One subject thought humor use to be most helpful in routine cases in order to break the monotony. Similarly, another subject described using humor when busy with minor calls and the patient's condition is not serious. In contrast, however, one subject
felt that if the clinical situation was different in some way, out of the ordinary, then using humor reduces the anxiety caused by not knowing what to expect. Another individual cited the use of humor for tension relief after being called to a bad auto accident without significant injury. Several subjects did identify using humor in serious clinical situations. For codes, significant trauma, or "bizarre" calls, where care is intensive or long, humor "helps keep you going". Humor use after a serious injury call was viewed as providing release of personal anxiety about what was seen and the care given ("Did I perform adequately?"). Humor was also identified as being used after a code or suicide since "death is always the hardest to cope with".
Table 16. Experienced Subjects' Ratings of Humor Use for Selected Clinical Cases

<table>
<thead>
<tr>
<th>Subject Responses</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very sick child (5 yr. old with croup)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Psychiatric patient (schizophrenic)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Code in an 80 yr. old</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Code in a 20 yr. old</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Bad auto accident with minor injuries</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Repeater (street person, probably alcoholic)</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>M.I. in a 50 yr. old male</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
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</table>

In what other situations is humor most helpful?
Somewhat surprisingly, almost all of the experienced paramedics stated that they may use humor after a very tragic situation (i.e., serious auto accident, airplane crash). Examples of comments in this vein were, "Under the most stressful situations you may have to use humor later . . . The more tragic, the more humor - silence is the worst . . . If an event hits close to home emotionally, you may use more humor". Using humor under these circumstances was described as "a way of dealing with what has happened; it changes your thinking about an event . . . it's a way of forgetting it". 
Figure 1. Frequency Bar Chart Comparing the Humor Ratings of Group 2 (Post-trained) and Group 3 (Experienced) on Case 1

CASE 1: VERY SICK CHILD

CASE 2: PSYCHIATRIC PATIENT

Figure 2. Frequency Bar Chart Comparing the Humor Ratings of Group 2 (Post-trained) and Group 3 (Experienced) on Case 2
Figure 3. Frequency Bar Chart Comparing the Humor Ratings of Group 2 (Post-trained) and Group 3 (Experienced) on Case 3

CASE 3: CODE IN 80 YR. OLD

Figure 4. Frequency Bar Chart Comparing the Humor Ratings of Group 2 (Post-trained) and Group 3 (Experienced) on Case 4

CASE 4: CODE IN 20 YR. OLD
Figure 5. Frequency Bar Chart Comparing the Humor Ratings of Group 2 (Post-trained) and Group 3 (Experienced) on Case 5

CASE 5: MINOR AUTO TRAUMA

Figure 6. Frequency Bar Chart Comparing the Humor Ratings of Group 2 (Post-trained) and Group 3 (Experienced) on Case 6

CASE 5: REPEATER (ALCOHOLIC)
Question 8: Can humor be overused? How?

All ten subjects in the pre-trained group responded yes. Humor was described as being negative when:

- It is overused to the point of annoyance.
- Nothing is taken seriously.
- It is used inappropriately and insensitively, either in the situation or the people with whom it is shared.
- Job performance suffers.
- It projects a non-professional attitude.
- There is an over-reliance on humor for stress relief instead of using other coping strategies (i.e., talking it out).
In the post-trained group there was virtually unanimous agreement that humor could be overused to the detriment of patients and fellow co-workers. Humor was described as being negative when:

- It is used inappropriately in terms of content, timing, or unintended listeners.
- It is carried too far and becomes annoying and inane.
- It is "too much at the patient's expense, there are some things you just don't joke about" (e.g., SIDS baby).
- It is used all the time, to cope with every situation without leaving the opportunity to deal with it (i.e., talk about it) later.

One subject in the post-trained group stated that it was possible but not likely that humor could be overused. He suggested that humor was not used enough.

In the experienced group eight paramedics thought humor could be overused. Of the remaining two, one replied that it could not be overused and the other qualified his answer with as long as the humor is done within the fire department "nothing is too far out". Humor was described as being negative by this group when:

- It is used inappropriately in terms of the content, timing, situation, or the people with whom it is shared.
- It interferes with the ability to care for a patient, either not taking the patient seriously or overlooking a medical problem.
• It is used to put off a very serious underlying situation that needs to be examined.
• An individual "harps" on a particular subject until it becomes "tiresome and boring".

**Question 9:** Rank the following coping strategies from most important to least important (1-6) for their value in dealing with your daily job/training/paramedic stress.

Tables 17, 18, and 19 present the pre-trained, post-trained, and experienced subjects ratings, respectively, for these coping strategies.

**Table 17. Pre-Trained Subjects Ratings of Six Coping Strategies**

<table>
<thead>
<tr>
<th>Subject Responses</th>
<th>Subject Responses</th>
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<tbody>
<tr>
<td>Talking with co-workers</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>Talking with family &amp; friends</td>
<td>4 1 2 2 1 2 1 1 3 2</td>
</tr>
<tr>
<td>Using humor</td>
<td>2 4 3 4 3 4 6 4 5 4</td>
</tr>
<tr>
<td>Recreation (i.e., hobby or exercise)</td>
<td>1 5 5 3 5 3 4 2 4 3</td>
</tr>
<tr>
<td>Quiet time for oneself</td>
<td>6 6 1 6 2 6 5 3 2 5</td>
</tr>
<tr>
<td>Socializing with friends</td>
<td>5 3 6 5 6 5 3 6 6 6</td>
</tr>
</tbody>
</table>
Table 18. Post-Trained Subjects Ratings of Six Coping Strategies

<table>
<thead>
<tr>
<th></th>
<th>Subject Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9</td>
</tr>
<tr>
<td>Talking with co-workers</td>
<td>3 2 2 5 2 1 3 3 1</td>
</tr>
<tr>
<td>Talking with family &amp; friends</td>
<td>1 1 4 1 3 2 4 2 5</td>
</tr>
<tr>
<td>Using humor</td>
<td>4 4 3 3 5 3 5 4 3</td>
</tr>
<tr>
<td>Recreation (hobby or exercise)</td>
<td>2 5 5 2 4 6 6 6 2</td>
</tr>
<tr>
<td>Quiet time for oneself</td>
<td>6 6 1 4 1 4 1 1 6</td>
</tr>
<tr>
<td>Socializing with friends</td>
<td>5 3 6 6 6 5 2 5 4</td>
</tr>
</tbody>
</table>

Table 19. Experienced Subjects Ratings of Six Coping Strategies

<table>
<thead>
<tr>
<th></th>
<th>Subject Responses</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>Talking with co-workers</td>
<td>3 3 2 1 3 1 4 5 2</td>
</tr>
<tr>
<td>Talking with family &amp; friends</td>
<td>6 2 4 3 4 4 2 5 1 3</td>
</tr>
<tr>
<td>Using humor</td>
<td>2 1 1 2 3 5 3 3 4 1</td>
</tr>
<tr>
<td>Recreation (i.e., hobby or exercise)</td>
<td>4 5 3 5 2 1 6 2 3 4</td>
</tr>
<tr>
<td>Quiet time for oneself</td>
<td>1 6 6 6 5 6 5 6 6 6</td>
</tr>
<tr>
<td>Socializing with friends</td>
<td>5 4 5 4 6 2 4 1 2 5</td>
</tr>
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</table>

An interesting comparison to examine within these three tables is how each group rates the value of humor as a coping strategy for daily job or training-related stress. Figure 2 displays a comparison of response frequencies for each groups' ratings of the importance of humor use in this
context. Though numbers are somewhat small for each group, (pre-trained $n=10$, post-trained $n=9$, and experienced group $n=10$) an analysis of variance was performed in order to get some sense if potentially significant differences between groups exist on their use of humor for occupational coping. The overall $F = 4.68$, significant at the .02 level. Pairwise comparisons were then performed and, not surprisingly, significant differences existed between the experienced and the pre-trained group ($F = 7.73, p = .01$) and the experienced and the post-trained group ($F = 6.10, p = .02$). The non-significant pairwise comparison between the pre-trained and post-trained groups was congruent with the findings of a repeated measures analysis of these subject's scores ($F = .06, p = .81$). Thus, if some tentative conclusion can be drawn from these results, the experienced subjects appear to value humor use as a coping strategy for daily job stress to a significantly greater degree than either the pre-trained or post-trained subjects.
Question 10: What would you say are the most important points you've made regarding your use of humor?

In the pre-trained group of subjects the most frequent type of response referred to humor use for the purpose of coping with stress. Humor use to affect emotional and cognitive refocusing through distancing and objectification is suggested in the following comments.

Humor gives you a mental break; it is an escape mechanism from reality. . . . Humor allows you to regain perspective, to take things in stride. . . . With humor you can get ideas from others and yourself that may shed new light on a problem. . . . you get your senses back and then [you can] attack the world. . . . Humor acts as an emotional buffer, otherwise
you'd get depressed . . . Humor keeps you from taking yourself too seriously; it helps you stay half sane . . . Humor allows you to cope with especially stressful situations, with the reality of bad news to come.

Other purposes of humor use described by subjects were that it 1) relieves tension in others and oneself, 2) is socially useful (i.e., fosters relationships with co-workers and helps uplift the mood of others), and 3) increases job satisfaction (i.e., "time goes faster, the work seems easier"). The importance of appropriately using humor as to the situation and timing was stated by a few subjects. Interestingly, two subjects described a deficit in their humor use, one identifying a need to use it more with co-workers, the other stating that humor was not a mechanism personally used to relieve stress.

Responses among the post-trained group to this question generally varied among four areas: the purposes of humor use, the subculture of EMS humor, the appropriate use of humor, and the characterization of EMS humor and its personnel.

Over half the subjects in this group identified humor use for the purpose of tension relief either from classwork or during clinical time. Humor "releases fears and anxieties . . . it helps you to relax when overtired from a heavy workload; it helps time to pass and go easier . . . humor is helpful in tense clinical situations (codes) . . . it's helpful in relaxing patients". Humor for the purpose
of social bonding and acceptance was also identified by a subject. He described a cliquish use of humor among paramedics for social bonding, that establishes one as part of the group, and aids in establishing the closeness of paramedic working relationships "which require watching out for one another".

Several post-trained subjects reported a subculture of EMS humor. These individuals reported that they had never encountered a humor subculture like this before and felt that people unfamiliar with critical care would not appreciate it. Exposure and transmission of this subculture to students occurs via contact with experienced emergency personnel. In training, the student is exposed to a style of coping and interacting with peers and patients as well as to skills and information. The subculture of EMS humor "is learned, it's handed down through the profession". EMS personnel were described as being on the same "humor wavelength, they deal with things in the same way". As to why this subculture might exist, subjects reasoned it was due to the tremendous pressure and responsibility of the job; "we're dealing with people's lives . . . patients need us when they call us . . . we can't make a mistake, it's not correctable". One student thought that the absorption of EMS humor required two elements - a certain type of personality receptive to this humor and opportunities within the environment to learn it. Another subject was very
cognizant that he developed a greater sense of humor in training, including humor about himself. He felt he "picked it up from ER people who were always joking, trying to make it easier".

A few subjects attempted to describe EMS humor and the people who use it. One subject stated it was "off-the-wall", another, that there were no "sacred cows", anything could be joked about, thus, a wide area of humor content was available. The milieu of an emergency department itself was described as a place of constant humor; "it keeps everybody mentally relaxed to do a better job and make less mistakes". Emergency department personnel were characterized as realists, down to earth, needing to be more in control, thus, "they cannot get excited about the little things".

A few subjects commented that the appropriate use of humor was important. Humor must cause no harm so one must be careful as to timing, the situation and who the humor is shared with. Also, every situation cannot be dealt with humorously, there is a time to be serious.

One subject in the post-trained group described, in a very similar fashion to the first interview, their lack of humor use for coping. This individual can appreciate the efforts of others but does not feel humor-productive. Another subject reported that humor may not be his first choice as a stress-coping mechanism, but it may be the first thing used in a situation due to the spontaneous way it can
be produced. In contrast, one interviewee felt that a sense of humor must be "carried and maintained into the [clinical] field or you cannot last without it . . . though the enjoyment of humor is specific to the individual".

Most of the responses made by the experienced paramedic group to this question focused on the purposes, appropriateness, and necessity of humor. Among these subjects, the most frequent response was that humor functions to relieve tension, it allows for decompression, ventilation. In terms of influencing emotional and cognitive refocusing, subjects gave these descriptions.

Humor allows you to forget, to not obsess about the last call, to prepare for the next call . . . humor returns you to a normal frame of mind . . . it puts the situation in a different perspective to change your way of thinking [in order to] decrease the seriousness of the situation . . . humor lessens depression . . . it may be used to get past a tragic event . . . humor is a distancing device.

Two paramedics further identified humor as a good "ice-breaker" with patients and as a way to increase job satisfaction.

Several paramedics emphasized that since humor takes place in a social environment it must be appropriate in terms of content, timing, the situation, and the people with whom it is shared; it is not meant to be cruel. One subject thought "paramedic humor" should not be shared outside of work. Humor must also be controlled so as not to interfere with one's ability in the work area.
Several subjects identified humor use as an important coping method used by paramedics. It appears to be "a big part of the job" and "necessary to use". In an implicit reference to an EMS humor subculture, one subject stated, "Humor is built into the fabric of the environment and people who work in crisis situations". Another subject more explicitly stated that a specific subculture of jokes exists among paramedics.

Occupational Coping Humor Scale Qualitative Data

Rather than revealing anything new about coping through humor use, the examination of written comments obtained from the OCHS questionnaire closely support the qualitative data reported from the interviewed subjects. On rating the sixth item of the OCHS, "It has been my personal experience that humor is often a very effective way of coping with job or school related stress", with an agree or strongly agree response, subjects were asked to write a few sentences describing how humor was effective for them in dealing with stress. Those purposes and situations of humor use discussed by subjects are summarized below for each group. (Since the OCHS written responses closely approximate the responses of the interviewed subjects to questions 1 and 10, they will not receive a separate discussion in the next chapter.)
In the pre-trained group the most frequently written comment was that humor functions as a release for tension and stress. Tension relief for the entire group of co-workers through the social use of humor was especially emphasized. Using humor to lessen the emotional impact of a negative situation was also mentioned by several subjects. Humor use in this context is a way to keep oneself and others "from becoming depressed and miserable". A number of subjects described using humor for cognitive refocusing. Comments in this vein portrayed humor as being able to give perspective on a problem, improve job performance by increasing cognitive clarity and calmness, decrease obsessing over a problem, and generally reinforce a philosophical attitude about life. In suggesting the effective uses of humor described above, a number of subjects still stressed the importance of appropriate humor use (i.e., time, place, and people shared with). Three subjects commented that they had or envision some difficulty in using humor under emergency situations.

Descriptive data from the post-trained group was somewhat more focused on two areas where humor proved helpful - in clinical situations and in the classroom. The greatest number of comments referred to humor's use in the clinical area. Most frequently cited was its use to relieve tension in both body and mind, to increase relaxation, and to increase one's ability to stay calm and think more
clearly. One subject stated he felt his use of humor was an indicator of his being in control. Other subjects indicated humor was effective in calming patients and their families if used appropriately. One subject was emphatic in stating, "Humor is a necessary tool for a paramedic . . . a strong and sometimes sick sense of humor seems necessary to cut the tension that can build". Several subjects reported that humor was most helpful to them in relieving the stress related to the classroom (understanding lecture materials and readings). The negative impact of difficulties related to poor comprehension seemed to lessen if humor was used.

The OCHS comments from the experienced group are quite similar to the data obtained from the individual interviews. The overwhelming response was that humor functions to relieve the stress and tension of the job. Particular emphasis was given to humor's use for emotional and cognitive refocusing. Prevalent comments described humor as helpful for "keeping things in perspective", "providing a reality break", "keeping you from dwelling on the last call", "preparing you for the next call . . . to remain functional", giving a positive or bearable outlook over a negative situation, providing emotional relief from the suffering encountered, and maintaining one's sanity through trying situations. Situationaly, humor was identified by several subjects as a way of dealing with an especially stressful call (i.e., mass casualty, trauma, sick children).
Humor use was also identified as useful with patients in helping them to relax and increase their responsiveness to treatment. Humor can also function to relieve the paramedic's stress and increase his/her effectiveness. The appropriate use of humor was one other major area mentioned by subjects. The appropriate timing of "paramedic" humor is after the call; a professional manner is required during the call. In describing the effectiveness of EMS humor, two subjects suggested this may be partially due to the "private joke" phenomenon - it can only be shared with those who understand it.
CHAPTER V

DISCUSSION

In this chapter, the results related to each of the first four research questions are reviewed and explained. The results from the additional relationships chosen for examination are then evaluated and integrated within the context of the findings related to testing each of the null hypotheses. After which, qualitative data from each of the three groups is compared for their similarities and differences, with important content issues highlighted for each group. Integration of qualitative data with quantitative findings is done where appropriate. In all of the above sections an attempt is made to consider the results of this study in light of the findings presented in Chapter II (Literature Review). Finally, a general discussion of the results, highlighting implications of the study, is used to synthesize the salient aspects of the investigation. Future research recommendations are offered based upon some of the limitations and possible extensions of the study.
**Discussion of Results Related to Null Hypotheses 1 - 4**

The first null hypothesis states that there will be no significant difference in humor appreciation scores across pre-training and post-training phases of the investigation. The total ASHI mean scores of each population were compared and no significant differences were found to exist. The same was true when SICKASHI mean scores were compared; no significant differences were found across the pre-training and post-training phases of the investigation. It appears that the paramedic training experience, in and of itself, does not affect a change in humor appreciation scores.

The second null hypothesis states that there will be no significant difference in humor coping scores across pre-training and post-training phases of the investigation. OCHS scores of each population were compared and no significant differences were found to exist. As was the case with null hypothesis 1, null hypothesis 2 cannot be rejected. The paramedic training experience does not appear to significantly affect a change in humor coping scores.

Null hypothesis 3 states there will be no significant relationship among measures of humor appreciation, humor production, and humor coping and life events' stress across the entire population of subjects. It should be noted that life event's stress was an important variable to examine and account for in the study. An initial premise of this investigation was that paramedic training and subsequent
experience as a certified paramedic were highly stressful life events which might be causally related to a change in humor appreciation, production, or coping. However, over the course of training and further experience, subjects may encounter many other potentially stressful events that could affect a change in humor. One of the limitations of a field investigation such as this is that subjects are not immune from a variety of other independent, confounding variables. Inclusion of such variables in the analytic paradigm of an investigation will either help account for variance in study findings or diminish their importance as contributors. Thus, it was important to obtain a measure of participants' life events stress and include its evaluation as part of this study.

The effects of positive and negative life events' stress were separately evaluated with respect to each of the dependent measures. This was done due to the conclusions drawn by Sarason, Johnson, and Siegel (1978) in their development of the Life Experiences Survey. Their results with research populations suggested that positive and negative life events' scores exhibit different patterns of relationships with relevant dependent measures. For example, negative life events' scores correlated significantly with state and trait anxiety, elevated scores on the Beck Depression Inventory, and an external orientation on Rotter's Locus of Control Scale, whereas the
positive life events' scores were not significantly related to any of these measures. Thus, the authors concluded, "It seems possible that life stress is most accurately conceptualized in terms of negative life changes rather than in terms of positive or total change" (p. 940). In light of the above findings, positive LES scores were separately regressed upon each of the dependent variable measures used in this study, the ASHI, the OCHS, and the number of captions produced. No significant relationships were found to exist between positive events' stress and the ability to appreciate humor, to produce it, or to use humor for occupational coping. This result appears to correspond with the findings of Sarason et al. (1978) that positive "stress" experiences are perhaps of a different nature and possess different relationships with relevant dependent variables.

The regression of negative life events' stress upon the dependent variable measures produced mixed results. Negative LES scores were not significantly related to humor production or occupational humor coping across the entire population of subjects. However, a significant relationship was discovered between humor appreciation and negative life events' stress for the population of subjects. In other words, those individuals experiencing a greater number of negative life events and/or rating these events as highly negative also rated jokes as funnier on the measure of humor appreciation. Groups did not significantly differ from one
another on the amount of negative life events' stress experienced, thus, somewhat strengthening the above result.

The significant relationship between negative life stress and increased appreciation for humor found in this investigation is not unprecedented. Safranek and Schill (1982) reported in their research a tendency for females to show greater appreciation for humor as stress and psychological distress increased. In a related finding, Fay (1983) reported that the subjects in his research who were most effective in coping with the stress in their lives had the greatest capacity to appreciate humor. In more recent research conducted by psychologist, Henry Cetola, level of humor appreciation has been found to be linked to an individual's physiological and cognitive arousal (Adler, 1989). "The greater a person's arousal, the funnier the joke seems ... It doesn't matter what caused the arousal; it can be from something other than the joke. But people will attribute their feelings to the joke" (p. 17). This finding may have some application to the study reported here. It would not be unreasonable to suggest that high levels of negative stress cause an increase of physiological and/or cognitive arousal. If so, then the increased levels of humor appreciation reported here, under conditions of high negative stress, would appear to complement Cetola's findings.
In summary, given the findings reported above, null hypothesis 3 may only be partially rejected. All relationships tested, other than the one between negative stress and humor appreciation lead to a do not reject conclusion. As to the relationship between negative life events' stress and humor appreciation, it is difficult to project what the exact nature of that relationship is. That high levels of negative stress may "arouse" an increase in humor appreciation is certainly plausible. That increased humor appreciation in any way helps the individual cope with the impact of stressful events is not a conclusion which can be supported from this investigation.

The fourth null hypothesis states that there will be no significant differences in the humor appreciation scores, humor coping scores, and humor production scores across the pre-trained, post-trained, and experienced groups. This hypothesis was partially rejected in that significant differences were demonstrated across the groups on the number of captions produced and the number of captions judged to have sick or black content. Specifically, the experienced group of paramedics produced a significantly greater number of captions than either of the other groups. Also, the content of the captions produced by the experienced group was decidedly more sick, black, and morbid.
These particular significant results seem to have some correspondence with what experienced paramedics say about how they use humor. There was some general consensus among the interviewed paramedics that the ability to make jokes, especially sick ones, was a coping mechanism for dealing with daily job stress. Increased skill at spontaneously producing humor in response to contact with stressful environmental stimuli may have some correspondence to the act of producing captions. Simply, experienced paramedics may be more facile at producing humor because they do it more. Since much of the content of their job-related humor has a sick element, these images may be more readily available cognitively to apply to visual stimuli.

A significant difference was not demonstrated across groups for the humor appreciation measure. The results of a multiple regression analysis reported in the next section suggest that a grouping of independent variables generally produced higher scores on the ASHI. These factors included membership in the pre-trained group, higher negative LES scores, and younger age. However, in light of additional correlational data snooping, humor appreciation appears to have differing relationships within groups with other important factors. For the pre-trained group no significant relationships exist between humor appreciation and humor coping, nor between humor appreciation and the self-rating as a humor producer. This is not true for the experienced
paramedic group. Significant moderate correlations exist between ASHI scores and OCHS scores ($R^2 = .47$) and ASHI scores and the self rating as a humor producer ($R^2 = .41$). Though the overall analysis of variance proved not to be significant, there are within group correlational differences which suggest a more complicated relationship exists among humor appreciation, production, and coping. There is additional quantitative and qualitative data presented in the next two sections supporting the relationship between the ability to produce humor and coping with occupational stress. For those paramedics who engage in humor use as a coping strategy there also seems to be a corresponding increase in humor appreciation.

Though a good deal of qualitative evidence was provided by the experienced paramedics for their use of humor in coping with stressful occupational situations, no significant difference among groups was found on the Occupational Coping Humor Scale. A factor analysis of this instrument discussed in the next section suggests some reasons for the lack of significant findings. In general, the instrument itself may not have been sensitive enough to distinguish the unique humor use of the experienced paramedic group. Interviewed subjects from all groups were able to generally identify using humor to cope with occupational stress. It was only through further discussion with the experienced subjects that the prevalence, special
content, and milieu support of "paramedic humor" began to distinguish itself. In addition, socially desirable responding may have caused subjects to present a perspective that at least partially supported coping through humor. (Presenting oneself as humorless under trying circumstances is less than flattering.) The no difference result between groups for the OCHS is not too surprising if the above arguments have some validity. The discussion of the factor analysis of the OCHS expands on these contentions.

Discussion of Additional Findings

The first set of additional data to be discussed centers on the results of separate Pearson correlation matrices performed on a number of independent and dependent variables for groups 1 and 3. Those correlations of particular interest were reported in Tables 9 and 10 of the last chapter. As reported in the previous section, for the experienced group of paramedics there appears to be significant relationships between the ASHI and SICKASHI and the OCHS. That is, general appreciation of humor, and sick humor specifically, are positively correlated with occupational humor coping in the experienced group. This result is similar to that reported by Fay (1983) who found that the subjects who were most effective in coping with the stress in their lives had the greatest capacity to appreciate humor. These findings are further bolstered by a
similar correspondence between peer ratings of the OCHS and the ASHI and SICKASHI. Those subjects who had higher total and sick humor appreciation scores in the experienced group were judged by peers to use humor to a greater extent to cope with occupational stress.

The above significant findings were found only for the experienced group. None of these correlations were significant for the pre-trained group. Two quite different rationales may be posited for this disparity. One is that individual differences could account for the variation in results since these groups are comprised of different individuals. However, a case has been made that these groups are quite similar demographically, thus, the variability in response due to these factors should be diminished. (Still, the influence of extraneous, independent variables can never be entirely dismissed in a field study.) A more interesting explanation of these results would seem to lie in the qualitatively different experiences of these groups. Evidence of this is suggested from the interview data of the post-trained and experienced paramedic groups. The presence of an EMS humor subculture may provide a more conducive atmosphere for experienced paramedics to engage in humor, thus, humor production for the purpose of buffering occupational stress is well supported. One way of promoting humor production is through a display of appreciation. Those individuals who use humor
to cope with occupational stress, in a milieu which supports this behavior, may be especially "primed" to rate humorous stimuli as funnier.

Disparity also exists for the correlations between peer ratings and the ASHI and SICKASHI for the pre-trained and experienced groups. The significant relationships found in the experienced group may have more than one explanation. First, the peers used to rate the subjects in the experienced paramedic group were other paramedics, in many cases the subject's current partner. This rather select group of peer raters are under the same environmental influences as the subjects themselves. Secondly, due to the structure of the paramedic working relationship, the ability of raters to know, interact with, and experience the humor coping behavior of the experienced paramedic subjects is probably greater than what might be available to raters of the pre-trained subjects. This assertion is somewhat borne out in the higher correlation obtained between the OCHS and peer OCHS ratings for the experienced group ($R^2=.48$) as compared to the pre-trained group ($R^2=.34$). Thus, strong milieu influences and closeness of working relationships in the experienced paramedic group may partially account for the differences in correlations with the pre-trained group.

One significant correlation which both the pre-trained group and the experienced group share is the relationship between the OCHS and the self-rating as a humor producer.
For both groups these were, in fact, the highest correlations obtained of any chosen for further study. It is not too difficult to speculate as to the nature of this relationship. Inherent in the ability to use humor as a coping mechanism is the ability to spontaneously produce it. One copes with humor by "making" jokes. This relationship between coping and humor production has been well cited in the literature (Masten, 1982, Jacobs, 1985, Martin and Lefcourt, 1983, Fay, 1983, Bizi, Keinan, and Beit-Hallahmi, 1988, and Frecknall, 1988). It is emphasized in these studies that it is the production of humor by the subject which produces a stress buffering effect.

For the experienced paramedic group the peer ratings of the OCHS also correlated significantly with the subject's self-rating as a humor producer. In a somewhat similar finding, Bizi et al. (1988) found that humor as rated by peers was positively related to performance under stress. However, this correlation was not significant for the pre-trained group. Once again, the ability of raters for the pre-trained group to experience the subject's humor coping/production behaviors may have been more limited than opportunities for the raters of experienced paramedics.

One of the findings already mentioned was the correlation between the OCHS and the peer OCHS. It would have been desirable if these correlations ($R^2=.48$ for the experienced group, $R^2=.34$ for the pre-trained group) had
been somewhat higher. As has already been discussed, part of this result, especially for the pre-trained group, may be due to the lack of close working relationships between subjects and raters. However, another contributing factor may have been that the OCHS is comprised of more than one component. Under these conditions subjects’ responses may vary according to the underlying issue represented in the statement. Thus, responding in a unified manner may not be possible with more than one component present. More will be said about this in the principal components analysis of the OCHS. Finally, subjects responding on the basis of social desirability to OCHS statements may diminish the differentiation from those who truly use humor to cope with occupational stress. To admit to losing one’s sense of humor or being unable to find comical things to say may not be a particularly desirable self observation. Thus, subjects, overall, may view their occupational humor use in a more positive vein than would be objectively judged.

A Pearson correlation matrix was constructed combining groups 1 and 3 in order to examine the relationship of demographic variables to the dependent variable measures. These variables are considered to be independent, extraneous influences which could potentially confound the influence of treatment effects. The vast majority of correlations between demographic variables and the dependent variable measures proved to be small and non-significant. Two
interesting correlations, modest but significant, did appear in the findings. Marital status (being married) was positively related to the OCHS and the self-rating as a humor producer. In a related finding, Jacobs (1985) found that more successful marital adjustment was related to a greater degree of positive humor use. An aside was made in the last chapter that perhaps marriage requires an "active" sense of humor. Marriage is work, in a sense, with its own set of stressors. Marriage provides another arena for the production of humor for the purpose of stress reduction. Thus, a married individual may get some extra "practice" in coping through humor use that carries over to the occupational setting. Though these correlational findings are somewhat tangential to the study at hand, they do present an interesting basis for further study.

The next series of multiple regression procedures was calculated to gauge the amount of variability accounted for by combinations of independent variables on a dependent variable measure for groups 1 and 3. Results from these procedures can reveal shared variability among independent variables which is not accounted for in a Pearson-type correlation. If, however, the variability accounted for by a single independent variable is undiminished by the addition of other variables to the equation, then the veracity of its main effect is supported.
Table 11 in the prior chapter shows the results of regressing negative life events' stress scores, age, and group membership onto the dependent variable, ASHI. This produced an interesting statistical anomaly. Though the entire equation accounted for a statistically significant amount of variability, no single independent variable was significant in and of itself. It was suggested that the amount of variability shared by these variables was sufficient enough to provide overall significance but inhibited their individual effect. This particular multiple regression finding may reflect on a result previously discussed. It was reported that negative life events' stress is positively related to humor appreciation across the entire population of subjects. The significance of this statement may be somewhat diminished by the above multiple regression results. For groups 1 and 3 negative life events' stress loses its individual significance when age and group membership are also considered. Thus, younger subjects and members of the pre-trained group also tended to rate jokes as funnier on the humor appreciation measure. It would be difficult to strongly embrace the single correlational relationship between humor appreciation and negative stress in light of this multiple regression finding.

The next multiple regression performed was designed to distinguish which independent variables, singly or in
combination, significantly contributed to the variance in OCHS scores. Results indicated that marital status, group membership, and negative life events' stress account for a significant proportion of the variance in occupational coping humor scores ($R^2=.38$). That is, being married, experience as a paramedic, and elevated levels of negative life events' stress significantly contribute to the variance in OCHS scores. Marital status, however, proved to be the only variable that was individually significant ($p=.005$). This strengthens the correlation previously reported regarding the positive relationship between being married and occupational humor coping.

The last multiple regression procedure performed regressed the variables, group membership, negative life events' stress, and level of education on the dependent variable, number of captions. These variables accounted for a significant proportion of variance ($R^2=.40$) in the number of captions produced. That is, being an experienced paramedic, elevated negative life events' stress, and a higher level of education are contributing variables for those subjects who produced a greater number of captions. Group membership, however, was the only individual variable which produced a significant T value ($p=.007$). This finding is congruent with the analysis of variance result previously reported which demonstrated a significant difference among groups for the number of captions produced.
The last additional statistical procedure to be reported is a principal components analysis performed on the OCHS data. It was deemed important to evaluate this data due to the modifications made in the OCHS from the original instrument. Also, determining whether or not subjects were responding to a unified theme might shed some light on the moderate correlations obtained between the OCHS and the peer OCHS for the pre-trained and experienced groups.

An evaluation of the principal components analysis suggests that three components are represented by the OCHS questionnaire. For the first component statements 2, 3, and 6 load together to account for approximately 27% of the variance. Statements 4 alone comprises the second component accounting for approximately 17% of the total variance. For the third component, statements 1 and 5 load highly together accounting for 26% of the variance.

From an examination of the statements on the OCHS, one theme becomes apparent as to the similar groupings for components 1 and 3. Depending on whether the statement itself was worded in a positive or negative manner seemed to determine its component loadings. That is, for component 1 statements which suggested humor use as a positive method for coping with occupational stress exhibited similar loadings. For component 3 statements that referred to losing one's sense of humor under stress produced comparable loadings. Syntax, in this case, apparently had some
influence on semantics. In generating the OCHS, careful consideration was given to the wording of statements so as to decrease the possibility of subject's generating a particular response set or style (Lanyon and Goodstein, 1982). The positive or negative thrust of each statement was aimed at reducing response distortion. Subjects may, however, have been trying to produce socially desirable responses or ones for which they thought the examiner was looking. Also, the personal meaning and implication of certain words used in each statement may have led subject's to respond in individually different ways. For example, the use of the word "comical" in statement 3 might imply a simply humorous remark for one subject while another may interpret comical as extremely funny. This could lead to some variation in responding as statement 3's loadings on components 1 and 3 seem to indicate.

That statement 4 singularly comprises component 2 may be attributable to the sentence's ambiguity. The wording of this statement ("Whether or not I laugh or joke at work does not seem to make any difference in how my day goes.") does not specify if it is mood or performance which might suffer. It was discovered that subjects responded to this statement with one or the other of these notions in mind. Since the implications of a serious attitude on mood vs. job performance is different, subjects' responses varied. Though the ambiguity in this particular question seems
fairly apparent, the subtly different interpretations of phrases in other statements could also lead to ambiguous responding.

The above observation are, of course, speculations as to the nature of the components generated. What can be said anecdotally is that asking people about how they use humor is an extremely sensitive matter. There seems to be some struggle between evaluating oneself realistically yet not appearing as a curmudgeon. Agreeing that humor can be a useful coping strategy vs. actively using it in a tense situation may have different meanings for different subjects. It appears that a combination of factors within the instrument and the subjects themselves conspired to produce more than one component. This type of variability in subject responding would seem to have a bearing on the moderate correlation obtained between the OCHS and the peer OCHS. That is to say that peer raters themselves would be subject to the same ambiguities as the individuals they were rating.
Discussion of Interview Data

Question 1: Do/did you use humor to cope with the stress of your job/paramedic training? How was it helpful?

It would prove most enlightening to first compare the pre-trained to the experienced group for their responses to this question. Only six of the pre-trained subjects responded yes to this question while the experienced subjects responded unanimously. This difference in positive responses sets up the expectation that the nature of the paramedic experience and/or the environment in which it occurs may be qualitatively distinct from most other occupational settings. It has been reported in the literature that the health professions face stressors which are affectively and cognitively different than other professions (Hammer et al, 1986). Paramedics, in particular, experience a high degree of job-related stress relative to other medical personnel.

There were also some different emphases in the way each group described how humor was helpful. For the pre-trained subjects humor use was most often identified as relieving tension and anxiety, similar to the way Freud (1959) described wit for the purpose of affective release. These subjects next identified humor use to enable cognitive and emotional refocusing, what Freud describes as true "humour" use. Other functions of humor such as social and philosophical were also noted by subjects. In contrast, the
paramedic subjects were very focused in their responses. The great majority of their comments as to how humor was helpful dealt with cognitive and emotional refocusing. Humor appears to function as a coping/defense mechanism allowing paramedics to gain distance, objectivity, and mastery over a situation. This is humor use as Freud (1959), Mindess (1971), and others have conceptualized it - to produce a psychologically liberating effect. Humor use for the purpose of tension and anxiety release was mentioned by a few of the experienced subjects.

Two notions stand out when comparing these two groups. One is that there is some continuity of responses between the groups. Some pre-trained subjects report using humor in the same manner as experienced paramedics in their occupational settings. This may lend some support to the lack of difference finding among groups on the Occupational Coping Humor Scale. Yet, the pre-trained subjects emphasis as a group was different from the experienced subjects, as well as identifying more functions of their humor use. The experienced paramedics are responding to a unified experience which they share. The intensity and seriousness of that experience may lead to a greater acknowledgment and use of humor as a coping/defense mechanism.

In the post-trained group, eight out of nine subjects interviewed felt they used humor to cope with the stress of paramedic training. This increase in agreement from the
subject's pre-trained interview may come from two sources: 1) Paramedic training was perceived as definitely more stressful than their previous job, thus, using humor to help combat that stress became more of an option and 2) the EMS environment, in which coping through humor often occurs, was supportive of this behavior.

The responses of the post-trained subjects as to how humor was helpful seem mostly directed toward the use of humor for affective tension release in either the clinical or classroom situation. The cognitive demands of paramedic training are apparently as much a cause for anxiety as the emotional demands. Previous EMT-A experience would have provided subjects with some initial contact with patients and the physical and emotional issues involved in their care. Thus, depending on the previous level of experience subjects had, both in the field and in the classroom, their use of humor for coping was directed to the area which produced the most anxiety for them. This points to a certain flexibility that humor possesses; depending on the cause of one's tensions, humor can be molded to fit the situation. That subjects commented very little regarding humor's use for emotional and cognitive refocusing may be evidence of high levels of anxiety regarding the learning and performance aspects of their training experience.

One interesting distinction among the post-trained subjects was that some felt their sense of humor had changed.
over the course of training while others did not. Whether or not a change occurred seemed to depend on three factors: 1) the subject's previous level of experience in critical care medicine, 2) the subject's particular clinical placement during training, and 3) the subject's own receptivity to acknowledging and participating in the humor present in the EMS environment. These personal and experiential factors are a recurring theme among the responses of post-trained subjects throughout the interview data. It is suggested that they account for the variation of responses seen in this group and for the different rates of growth into the EMS "humor subculture".

**Question 2:** Which of the following humor types do you and your fellow co-workers/students/paramedics tend to use most often? Sick or black, sexual, ethnic, nonsense, or put-down.

In comparing the three groups, the frequency of sick humor use sharply increased from the pre-trained to the experienced phase. This finding is in accord with the results of the post hoc comparisons demonstrating a significantly greater number of sick captions produced by the experienced paramedic group. Concurrently, sexual and ethnic humor both show moderate declines. Apparently, the content of what one experiences and must deal with provides the fodder for the type of humor individuals express. Paramedics may find an immediate outlet through sick humor
from the daily bombardment of illness, trauma, death, and social maladies they encounter. The writings of Mindess (1985) and Ziv (1984) support the results reported here. In their responses to the next question paramedic subjects elaborate on their use of sick humor.

**Question 3**: Do you share this type of humor with family and friends? On the whole, do they enjoy this humor? Do you find this brand of humor job specific? The point of this question was to determine if subjects in each group perceived that there was something occupationally specific about the humor shared with co-workers. Eight out of ten of the pre-trained subjects felt there was not. They were able to share this humor with family and friends and felt that it was enjoyed by them. Only two subjects stated that they felt that the humor they used occupationally was job specific and, therefore, could not be shared with family and friends. The chief reason for this opinion was that the nature of their work and, thus, the humor related to it, would not be understandable to most people. This sets up an expectation, which is borne out in the responses of the next two groups, that when stressful life experiences are qualitatively different from what most other people encounter, the humor used to deal with them is perceived as being unique.

In sharp contrast, the experienced paramedic subjects were in unanimous agreement that they could not share the
humor used among co-workers with family and friends. They were quite articulate about why this was so. Similar to the two pre-trained subjects, the paramedics felt they could only share humor which would be understandable to the listener. If the listener has not had similar experiences then there is a loss of empathy and appreciation for the joke and its context. In addition, sharing with family and friends was identified as inappropriate due to the sick nature of most of the humor. Its use is situation-specific, thus, participation in the experience is almost vital to "get the joke". Related to this, is the issue of timing. The use of sick, situation-specific humor is a spontaneous event. "The joke doesn't come out the same" once the crisis has passed. Experienced paramedics seem to be identifying humor use for the purpose of coping with stress as a unique event, spontaneous, productive, and experiential in nature. The productive aspect of humor coping has been underscored by other researchers in the literature (Martin & Lefcourt, 1983, Bizi et al, 1988, and Fay, 1983) as well as receiving statistical support in this investigation.

The responses of the post-trained subjects are varied demonstrating different rates of growth into the EMS humor subculture. Four subjects still felt they could share the humor used among fellow students and EMS personnel with family and friends, while five did not. The five who do little or no sharing with family and friends identified the
same reasons as the experienced paramedics - uninitiated listeners would not understand the experience upon which the humor is based, it is an instantaneous event which fits in with the situation and the humor would be difficult to explain out of context. There was quite a diverse response as to whether the humor used was job specific; four replied yes, two stated no, and three thought it was both job and non-job specific. This lack of agreement seems to point to the varied rates of metamorphosis into the EMS humor subculture of each of these subjects. Important factors determining rate of change may be the subject's previous use of humor as a coping strategy, their current receptivity to humor coping, their past EMS experience, and the "humor environment" present in their current clinical placement.

**Question 4 for the pre-trained subjects:** Was your use of humor different in this job than it was in previous ones? This question was asked of the pre-trained group to discover if humor use manifested a flexible, mutable nature under less specific and severe environmental circumstances than paramedic training. If so, this evidence would provide a supportive backdrop to any changes reported as a result of paramedic training or experience. Eight subjects did, indeed, report that their humor use was different in their previous job since the job itself differed in some significant way from the current one. (The two subjects who reported no change in humor use felt their previous job and
their current one were quite similar in nature.) Major job
differences which affected humor use were increased stress
and pressure, a different social environment, and a change
in the subject's behavior due to a new occupational
situation. The variety of situational circumstances
reported by subjects which influenced a change in their
humor use suggests that humor can be sensitively and
flexibly adjusted to new stressful or social circumstances.

**Question 4 for the post-trained and experienced subjects:** Did your sense of humor change between the
beginning and the end of training? Did it change with
further paramedic experience? (For experienced paramedic
subjects only)

Seven of the nine post-trained subjects felt that their
humor had changed in some way during training. Once again,
however, this group offered a variety of responses as to the
source and/or purpose of the change. Some identified a
subculture of EMS humor that influenced a change in their
clinical humor use. Others identified an increase in their
humor use as a result of feeling more comfortable socially
or in response to classroom stress. Two subjects stated no
change whatsoever occurred during training. This
variability in response appears consistent with this group's
replies to previous questions; the subjects' past and
current EMS experiences, their own subjective needs and
anxieties, and their receptivity and current use of humor
causes different perceptions and observations among subjects. The different rates of growth of the post-trained subjects, as to the acknowledgment and identification with an EMS humor subculture, is corroborated by data from the experienced paramedics.

Five of the experienced subjects felt their humor use changed after training, three believed their humor changed during training and leveled off thereafter, and two felt changes occurred both during and after training. The kinds of changes identified by subjects were increases in both overall humor use and sick humor content. Though the experienced subjects are relating their perceptions retrospectively, they appear to be describing different rates of change in humor use similar to those reported currently in the post-trained subjects. However, the responses of the experienced paramedics are more focused on the changes in humor use as a function of stressful clinical experiences. Lack of exposure to a variety of stressful situations while in training was one reason given for changes occurring after training. The full impact of the "paramedic experience", with a range of emotional, physical, and moral issues to encounter, takes longer than a nine month training period to fully appreciate. Yet, for those who felt their humor use changed during training, they appeared to have some personal or environmental receptivity toward developing humor as a coping strategy.
Two general conclusions may be inferred from the data collected from these three groups. One is that humor use appears to be flexible and changeable under a variety of environmental circumstances. Second, though changes in humor use among a particular group, under similar environmental conditions, may become more consonant over time, the rate of change for each person is related to the individual differences which exist.

Question 5 for the post-trained and experienced subjects: Did the sense of humor in others in your training group change? If so, was this formally or informally taught? Do most students/paramedics participate in this use of humor? If they don't, do they seem to perform their job as well? Do they seem more stressed?

Once again the post-trained subjects gave a mixture of responses. Six subjects thought a change in humor use had occurred among their fellow students while three did not. Most of those who reported a change attributed it to increased social comfort in the student group. Only two subjects felt the humor of the group had changed as a result of exposure to more experienced EMS personnel. It is likely that these particular subjects were responding to their own experiences and projecting their effect onto the rest of the class. This type of response, however, does somewhat substantiate the belief that a trainee's particular clinical exposure to an EMS humor subculture affects their growth.
into that milieu. Those subjects who did not recognize a change in humor use of their group also seemed to give rationales based on their own individual feelings and concerns.

Whatever changes in humor use that were identified by the post-trained subjects were all thought to have occurred informally. There was general agreement among the subjects that most students did participate in general humor use. Those who participated less did not seem overly stressed or to perform poorly. These observations may be somewhat superficial in that students did not have a great deal of contact with other members of their group outside of class. Their observations lack some of the insight of those of the experienced paramedics.

All of the experienced subjects reported that they felt that they could not accurately assess whether the humor of others in their training group had changed. When asked to account for their own change in humor use there was substantial agreement that "EMS humor" was picked up informally from more experienced emergency personnel. It seemed rather obvious to the paramedic subjects that an EMS humor subculture existed and trainees become indoctrinated into it through the socialization process. The two qualities which seem to best depict EMS humor are that it is frequently used to deal with stressful clinical situations and the content of jokes is often sick. One subject
interestingly commented about his individual development of EMS humor. He stated that he felt that humor was a natural defense to use as a paramedic to release stress and tension. Just by exposure to cases, not learning it from others, one could develop this type of humor. The combination of both of these elements is probably a good approximation for how an identifiable EMS humor subculture came into existence.

There was unanimous agreement among the experienced paramedics that most of their co-workers do participate in stress-release humor to some degree. However, a small percentage do not. Despite individual differences, most paramedics apparently adopt humor use for stress reduction and to facilitate peer and patient interaction. For some, though, humor use is not a part of their repertoire for coping with stress. How this affects job performance was a matter of mixed opinion. Some subjects thought that without humor competent performance would suffer or, at best, would prove more difficult. Bizi et al. (1988) demonstrated in their research that humor as rated by peers was positively related to performance under stress. Other authors have reported that the negative impact of stress on performance is a cause for concern (Maslasch, 1978, Strauss & Glaser, 1970, and Hammer et al, 1985). However, some subjects felt that if the individual had other coping strategies available then job performance would not necessarily suffer. This brings out an important point made by some post-trained and
experienced subjects. Everyone reacts to stress differently, thus different methods of coping are used. "Humor may or may not work for a particular individual." This is a difficult statement to argue with but there are apparently sufficient environmental pressures brought to bear that most paramedics adopt humor as a viable coping strategy.

If the experienced paramedics were in some way unwilling to admit to a deficit in any of their co-workers job performance, they were more willing to share that those with less humor seemed more stressed. Martin and Lefcourt (1983) reported in their work the stress buffering effect of humor on mood. Also, the correlations previously reported in this study between self- and peer-ratings as a humor producer and the Occupational Coping Humor Scale for the experienced paramedic subjects appear to be related findings. Those paramedics who use little humor were described by subjects as angry, too emotionally involved, overly sensitive, and anxious. Thus, there was a differentiation by paramedics between a stressed care provider and a poor care provider. That such a distinction is borne out over time has implications for future study.

Question 6 for the post-trained and experienced subjects: Do you use humor with patients? In what situations? How is it helpful?
In both the post-trained and experienced paramedic groups, most subjects agreed that they did use humor with patients. Reasons cited by each group were similar, the most frequent being that it relaxes patients and helps to put them at ease. The use of humor with patients is anecdotally supported in the literature (Zierke, 1986, Robinson, 1977, and Lieber, 1986). Whereas several of the post-trained subjects named particular types of patients for whom humor use seemed to be helpful, the experienced subjects reported using humor more generally and routinely (rather than applied to particular patients or situations). A number of the experienced paramedics emphasized that the humor used with patients was very different than what is shared among the paramedics. That is, EMS humor is private and inappropriate to share with others. This distinction was not mentioned by the post-trained group, attesting to their overall lack of exposure and immersion into an EMS humor subculture.

**Question 7 for the post-trained and experienced subjects:** Rank the following clinical cases with either a 1, 2, or 3 rating for how frequently you and the people you've worked with might have used humor about these cases after the call. In comparing these two groups overall, one is struck by the amazing consistency and extremeness of responses found among the experienced subjects. For the post-trained group responses were less consistent and less
extreme but the ratings were in the same direction as the experienced group. The experienced paramedics consistently reported using humor rarely in the case of a very sick child, a code in a 20 year old patient, and a heart attack in a 50 year old male. Not only are these cases quite serious in nature but paramedics in this age group may personally identify with these scenarios. Also, it is much more difficult to justify serious and life threatening events in younger patients (Rosen & Honigman, 1988).

In contrast, humor is reportedly often used in the cases of a schizophrenic and a repeater (this is generally a homeless individual who is probably alcoholic). These cases are seen more often by paramedics, they are certainly less life threatening, these patients exhibit behavioral manifestations which may lend themselves to humorous interpretation, and paramedics are less likely to personally identify with these patients. Humor is also reported by this group to be used frequently in the case of a bad auto accident with only minor injuries. It is likely that the tremendous tension and anxiety produced upon first arriving at the scene of an accident finds release when only minor trauma is discovered. Only the case of the code in the 80 year old patient produced less extreme and less consistent results. This event appears to draw a more varied response as to how well subjects personally relate to it. Though
this is a serious event, death becomes easier to justify in an elderly patient.

Both groups were also asked, "In what other situations is humor most helpful?" Somewhat astonishingly, almost every experienced paramedic appeared to contradict their above rare-humor-use ratings. They identified very tragic situations, the ones which cause the most stress, the ones that "hit close to home emotionally" which may require humor use later. In their research, Mason (1982) and Cox (1980) reported similar types of clinical situations (e.g., mass casualties) that their paramedic subjects identified as most stressful. It has also been observed that humor is a very effective coping mechanism in dealing with death and disaster (Lattanzi, 1984, Burkle, 1983, and Thorson, 1985). Humor use, under these circumstances, was described by subjects as a way to deal with the event, to change one's thinking about it, to forget it. This is a fairly clear description of humor coping for the purpose of emotional and cognitive refocusing, especially distancing oneself from the event.

Why the apparent contradiction in responses? It may have been difficult for subjects to admit to using humor in serious situations when it is presented in an isolated manner, taken out of the context of an explanation. Upon reflection, subjects could justify their use of humor in tragic situations as an important coping strategy, one which
allows them to continue to perform competently. Humor appears to have one great advantage over many other coping or defense mechanisms for paramedics; its use is spontaneously generated and its effects of stress reduction are instantaneous for the individual as well as the milieu. There is a "good fit" between the way stress is experienced by a paramedic and how humor intervenes in that process.

The post-trained subjects demonstrated more consistency between their ratings and their subsequent comments. Several subjects reported greater humor use when cases were routine and not serious. However, a few did identify using humor in serious clinical situations similar to the experienced paramedics. Apparently, depending on the subject's clinical exposure and humor role models a wider variety of responses were given by the post-trained group.

**Question 8: Can humor be overused? How?**

This question probably showed the most similarity of responses between groups than any other. There was overwhelming agreement that humor has its limits. The four most frequently cited circumstances of negative humor use were when:

1) It is used inappropriately or insensitively.
2) It becomes annoying and tiresome.
3) It interferes with job performance.
4) There is an overreliance on humor use for stress relief to the exclusion of other coping strategies.
When humor is overused subjects identified problems related to its misuse of both a social and personal nature. Humor use is generally a shared experience, thus, it affects those who hear it either positively or negatively. Individually and socially, humor use seems to have important stress reduction benefits, especially where its effect is required immediately. However, its singular use, by an individual or a group, could delay or deny any real introspection of a problem or sensitive issue.

**Question 9:** Rank the following coping strategies from most important to least important (1-6) for their value in dealing with your daily job/training/paramedic stress.

Subjects were asked to rate six coping strategies to determine if the general ranking of humor changed among the three groups. An analysis of variance demonstrated a significant difference among groups. Post hoc comparisons revealed the experienced paramedic subjects ranked humor significantly higher as a coping strategy than either of the pre-trained or post-trained subjects. In light of the qualitative data previously reported, this is not a surprising result. Humor use has been endorsed by the paramedic subjects as an important strategy in coping with the unique stress of their occupation. Other studies done with a variety of emergency personnel, including nurses, physicians, and paramedics, support this finding (Lieber, 1986, Keller & Koenig, 1989, Lipson & Koeler, 1986, Palmer,
1983, and Zierke, 1988). Post-trained subjects have probably not yet experienced the full impact of continued daily exposure to clinical situations or the immersion into the paramedic's distinctive humor subculture.

**Question 10:** What would you say are the most important points you've made regarding your use of humor? Responses of each of the three groups showed similarities and differences. The most important issues identified by the pre-trained group were that humor reduces stress and tension (with several comments specifically suggesting emotional and cognitive refocusing), fosters relationships with others, increases job satisfaction, and must be used appropriately.

Similar to the pre-trained subjects, post-trained subjects commented on humor use for the purpose of tension release, especially with regard to clinical and classroom situations, and the conditionally appropriate use of humor. Comments from this group, however, also included statements regarding the presence of an EMS humor subculture, its transmission via contact with experienced emergency personnel, reasons why such a subculture may exist, and characterizations of emergency personnel and the humor they use. For some individuals in this group there was a growing awareness that critical care has a unique humor element to which they are being exposed. As previously mentioned, this awareness seems to be related to the subject's clinical
exposure to both cases and humor models and their own personal receptivity to humor as a coping strategy. Consistent with the varied responses that post-trained subjects had to previous questions, they also covered a wide spectrum here. At one pole a subject could not identify with humor as a personal coping strategy or as being a humor productive person. At the other end of the spectrum another subject felt humor was a necessary quality to have "in the field" and that one could not last without it. Somewhere in between these two, a third subject responded that humor may not be their first choice as a stress-coping mechanism, but it may be the first thing used in a situation due to the spontaneous way it can be produced.

Many of the responses made by the experienced paramedics focused on the relief of tension through humor use, the emotional and cognitive refocusing function of humor, and the socially appropriate use of humor. This is similar to comments made by both pre-trained and post-trained subjects. What several experienced subjects said that was different was their explicit endorsement of humor as an important coping strategy used by paramedics. One subject summed up rather eloquently what several others had suggested; "Humor is built into the fabric of the environment and people who work in crisis situations." For critical care providers humor has important qualities that may assist them in dealing with the stress of emergency care (Metcalf, 1987 and Morreall, 1983).
General Discussion of Results

In an investigation such as the one conducted here, where a large amount of data was gathered both quantitatively and qualitatively, it is important to synthesize related pieces of information and highlight those salient aspects. From the outset this study was conceived as an attempt to explore the premise that humor is a flexible stress buffer, one which can change or grow as the individual encounters different situations. In general, some quantitative and qualitative results reported here support these notions.

One result which seems particularly important is the relationship discovered between humor coping and humor production. From that which has been reported here, there is both quantitative and qualitative evidence offered in support of this relationship as well as the findings from other studies exploring the relationship between humor and coping with stress. It seems that inherent in the ability to use humor as a coping mechanism is the ability to produce it spontaneously, to "make jokes". The stress buffering effect of using humor under trying or demanding circumstances is instantaneous. This is a particularly "good fit" for paramedics between the way their duties induce stress and how humor intervenes in that process. Paramedics experience a wide spectrum of serious events - trauma, life-threatening illness, chaotic emotional
situations. There is no time to emotionally prepare for these events and little time to ventilate afterwards or "decompress". The spontaneous way humor can be produced in almost any situation and its instantaneous (if momentary) stress-reducing effects are well matched to the paramedic experience.

The data from interviewed paramedics and the written comments provided on the Occupational Coping Humor Scale from the experienced subjects afford a fairly consistent picture of how paramedics use humor. First, there is wide support and acknowledgment of its use. The great majority of experienced subjects' comments as to how humor was helpful focused on the coping/defense mechanism functions of humor. Collectively, these functions were often considered under the rubric of emotional and cognitive refocusing. What the paramedics gained, in general, from engaging in such humor was distance from a critical situation and their own emotions, objectivity, and continuing mastery over themselves and the environment. There must be a way for paramedics to stop experiencing or reframe the pain and depression inherent in what they encounter. Humor allows an immediate deflection of the emotional impact of serious events to enable continuing competent performance.

As much as the experienced paramedic subjects endorsed humor use as occupationally important, the pre-trained subjects were also able to echo these sentiments. This
brings up the important point that humor is readily accessible to almost all individuals as a healthy aspect of their emotional functioning. We are socialized to functionally use humor in our everyday lives to relieve tension in a number of situations (i.e., social, embarrassing, to diffuse anger). The "generic" humor use of everyday life naturally carries over to the workplace and vice versa. This may account for some of the lack of difference results among the pre-trained, post-trained, and experienced groups. Humor use as a coping strategy for stress is not the exclusive domain of experienced paramedics. What is unique about paramedics and the subsequent humor they use is the emergency care experience itself. Most people just don't undergo the physical, emotional, and existential bombardment that paramedics do in their occupational lives. There are layers of protection for most people to avoid contact with these events in their everyday experience. With clinical experience the paramedic's use of humor molds to the situational demands of the job and the surrounding EMS milieu. The prevalent use of "sick" humor by experienced paramedics is a good example of how humor use can change over time and be molded to cope with very stressful situations. For experienced paramedics the humor use of daily occupational life no longer has direct application to their family and social experiences;
the humor they use at work is seen as very job-specific, not to be shared with those unfamiliar with emergency care.

Another important overall finding of this study was that paramedic training did not carry the full impact of the paramedic experience or provide immersion into the EMS subculture. No significant differences were found on several quantitative measures between the pre-trained and post-trained groups. Further insight was gained about the experiences of the post-trained group from the interviewed subjects. It became apparent that a number of individual factors, unique to each trainee, were causing different rates of change in humor use. Important factors seemed to be the subject's past EMS experience, their previous use of humor as a coping strategy, the "humor environment" present in their current clinical placement, and the subject's own receptivity to acknowledging and participating in the humor present in the EMS environment. This caused varied responses by post-trained subjects regarding a change in their humor use and participation in an EMS humor subculture. It seemed to appear rather obvious to a number of the post-trained subjects (and virtually all of the experienced subjects) interviewed that an EMS humor subculture existed and trainees became indoctrinated into it through the socialization process. The qualities which seem to best depict EMS humor are that it is frequently used to deal with stressful situations, the content of jokes is
often sick, and it is widely used and supported in the EMS milieu.

There were some issues on which almost all subjects could agree. Subjects from all three groups were virtually unanimous in the opinion that humor could be overused. Humor is not a stress reduction panacea and there are social and personal problems which can arise from its misuse. The singular use of humor, to the exclusion of other appropriate coping strategies (i.e., debriefing sessions), could negate deeper introspection into a problem or sensitive issue. The experienced subjects were particularly sensitive to the appropriate timing, content, and situational circumstances of humor use. It seemed they wished to make a clear distinction between the humor they use among themselves for stress reduction and what they might use with patients. Both the post-trained and experienced groups were in accord as to the benefits of appropriate humor use with patients. There is also wide support for this type of patient interaction in the literature.

Recommendations for Future Research

Two general recommendations will be made regarding the way in which future humor research might be conducted. First, a qualitative method of data collection can provide extensive, detailed information on how subjects use and experience humor. The self-defined nature of humor
appreciation and production punctuates the importance of examining it in an environmental context. Any number of qualitative techniques could provide contextually meaningful data i.e., interviews, participant observation, running diary entries, role playing. These methods would provide the opportunity to either watch or document the spontaneous production of humor under "natural" circumstances, stressful or otherwise.

The quantitative testing of humor appreciation and production proved to be much more difficult and sensitive to confounding environmental factors. The re-development and testing of certain instruments, such as the OCHS, would be appropriate before extensive future use. Also, the administration of objective measures under extremely consistent environmental circumstances would prove helpful. Even then, controlling for an individual's mood or socially desirable responding would be difficult. The results of quantitative humor measurement are best evaluated in tandem with supporting qualitative data.

Future research topics related to humor are almost limitless due to the lack of previous systematic investigation. Closely related to this study, future investigations might be designed to compare the use of humor by other emergency personnel, other hospital personnel, or other professions entirely to that of paramedics. Studies using different occupational or demographic groups might
further delineate the kinds of stressors with which humor is most effective and those with which it is less appropriate. Another issue which was raised in the qualitative portion of this study, but not systematically explored here, was the relationship between humor use and competency. Paramedics made a distinction between a stressed care provider and a poor care provider. It would be interesting to examine paramedics' levels of humor appreciation and production in relation to competency ratings by peers and supervisors. Also, what are the peer and supervisor ratings of humor use for those paramedics who leave the profession under "burnout" circumstances. Answers to these questions would perhaps help clarify how necessary humor use is to competent performance and professional survival.

The relationship of humor appreciation and production to other variables related to psychological health and well being may also prove enlightening to explore. Humor use might demonstrate a direct or indirect relationship with such variables as hardiness or locus of control. In the study reported here, a relationship was found between occupational humor coping and marital adjustment. How humor use may relate to successful marital adjustment is a topic well worth exploring. It may further expose the specific processes involved in the stress buffering effects of humor.

One other interesting possibility for future research is the study of humor appreciation and production among
impaired populations (i.e., substance abusers, anxiety disordered individuals) and experiential teaching to their deficits. Everyone has a "humor template", if you will - how they react or don't react to humor, whether they are facile at producing it. The data reported here indicates that humor is indeed flexible and can change over time to help individuals cope with the stress of their environment. Diagnostic humor evaluation and adjunctive humor therapy may prove helpful to the overall therapeutic outcome for impaired individuals.
REFERENCES


Stokes, William. (October 16, 1988) Dire illness can be a laughing matter. Chicago Tribune, Sect. 3.


Thorson, James A. (1985) A funny thing happened on the way to the morgue: some thoughts on humor and death, and a taxonomy of the humor associated with death. Omaha Death Studies, 9(3-4), 201-216.


ANTIOCH SENSE OF HUMOR INVENTORY

DATE:__________    AGE:__________    GENDER:__________

MARITAL STATUS: Single _____  Married _____  Divorced _____

NUMBER OF CHILDREN: ______

EDUCATION: High School Grad. _____  Some College _____  College Grad. _____

OCCUPATION: Current ________________ Previous ________________

MILITARY EXPERIENCE: No _____  Yes _____  If yes, how long? _____

ETHNIC ORIGIN: ________________________

Please rate your enjoyment of each joke or cartoon from 5 (very much) to 1 (not at all). Circle the appropriate number. Circle the question mark if you do not understand the joke. Please try to compensate for the fact that you may have heard some of these before by responding as you imagine as you responded the first time. The jokes and cartoons used in this questionnaire in no way reflect any particular attitude on the part of the examiner.

It is very important that you complete this inventory independently, without sharing the jokes with others until you have completed your ratings. Try to complete this questionnaire at a time when you are feeling fairly "normal" for you, neither overtly sad or overjoyed.

1. Q. What does a grape say when you step on it?
   A. Nothing. It just gives a little whine.  5 4 3 2 1?

2. A man goes to a psychiatrist, who gives him a battery of tests. Then he announces his findings. "I'm sorry to have to tell you that you are hopelessly insane." "Hell," says the client, indignantly. "I want a second opinion." "Okay," says the doctor, "you're ugly too."  5 4 3 2 1?
4. Q. What did Raggedy Ann say to Pinnochio when she was sitting on his face?  
   A. "Tell the truth. Tell a lie. Tell the truth. Tell a lie."

5. The mongoloid husband comes home from work and sits down at the table, hungry for dinner. His mongoloid wife puts a plate with a piece of meat in front of him. "Where are the vegetables?" he asks. "Oh," she replies, "they're not home from school yet."

6. Did you hear about the man who was half Polish and half Italian? He made himself an offer he couldn’t understand.
8. A lusty young farmer is showing an attractive woman around his farm. Hoping to turn her on, he shows her a bull mating a cow. "Ain’t that something?" he says. "Yes," she replies. "It’s very impressive." So he looks her up and down. "I’d sure like to do that," he murmurs. "Well, why don’t you?" she says. "It’s your cow."

9. A fellow finally gets his uptight girlfriend into a romantic mood. As her passion mounts, she pants, "Oh, I’m just not myself tonight!" "Well, whoever you are," he replies, "it’s a big improvement."

10. A blind man enters a department store, picks up his dog by its tail and begins swinging it over his head. A clerk hurries over and says, "Can I help you, sir?" "No thanks," he replies, "I’m just looking around."
11. It is better to keep your mouth shut and appear stupid, than to open it and remove all doubt.

12. I used to snore so loud that I would wake myself up. But I solved the problem. Now I sleep in the next room.

13. A five-year-old boy is walking with his daddy in the park when they see two dogs mating. "What are they doing, daddy?" he asks. His father replies, "They're making little puppies." That night, the child walks into his parents' bedroom while they are making love. "What are you doing, daddy?" he says. "We're making your baby brother." "Oh," says the kid. "Well, why don't you turn her over. I'd rather have a puppy."

14. A wise old teacher is dying. His disciples line up next to his deathbed, from the most brilliant one at the head of the line to the most stupid one at the end. The brilliant one leans down and says, "Master, master, what are your final words?" "My final words," murmurs the ancient, "are—life is a river." The disciple repeats these words to the per-
son next to him, and the message travels like wildfire down the line. "The master says life is a river. The master says life is a river." When it reaches the oaf at the end, however, he says, "What does the master mean life is a river?" That message travels back up the line. "What does the master mean, life is a river?" The brilliant disciple leans over again for the teacher is breathing his last. "What do you mean, life is a river?" he pleads. And the teacher shrugs, "So it's not a river!"

16. Q. How did Helen Keller burn her ear?
A. Answering the iron.

17. Male: "What do I have to give you to get a kiss?"
Female: "Chloroform."

18. \[\text{Diagram of two figures} \]
19. **Q.** Why is a cucumber better than a man?  
   **A.** Because a cucumber stays hard for a week.  

20.  

21. A man orders a pair of pants from the tailor. It takes him six weeks to complete the job. Incensed, the customer berates him. "God it took only six days to create the world, and you it takes six weeks to make a pair of pants." "Yes," replies the tailor. "But look at these pants—and look at the world!"

22. **Q.** Is sex dirty?  
   **A.** Yes...if it's done right.  

23. Military intelligence is a contradiction in terms.  

24. O FE dear, what XTC  
   1 MN8 when U IC!  
   Once KT 1 me with her I's;  
   2 LN I O countless sighs;  
   Twas MLE while over C's;  
   Now all 3 R nonNTT's,
4 U XL them all UC
   U suit me, FE, 2 a T. 5 4 3 2 1 ?

25. **Q.** Why do farts smell?
   **A.** For the deaf. 5 4 3 2 1 ?

26. **Q.** What's the difference between a canoe and a Jew?
   **A.** A canoe tips. 5 4 3 2 1 ?

27. A man comes into a bar with his dog and orders two martinis. He drinks one and the dog drinks the other. The next day the same thing, the next day the same. Finally, the dog comes in alone, so the bartender serves him a drink without even asking. The next day the man comes in with a box under his arm. "I brought you a present for being so nice to my dog," he says. "It's a king crab." "Oh, thanks," says the bartender. "I'll take him home for dinner." "No," says the man. "He's already had his dinner. Why don't you take him out to a movie instead?" 5 4 3 2 1 ?

28. **Q.** Why shouldn't a Mexican marry a Negro?
   **A.** Their children would be too lazy to steal. 5 4 3 2 1 ?

29. Gentleman to lady, while pouring her a drink:
   "Say when." Lady: "Right after this drink." 5 4 3 2 1 ?

30. Three elderly gentlemen sat on a park bench comparing their ailments. The first began his "organ recital" by complaining again of his terrible constipation. "Every morning I get up at 6:30. I go to the bathroom and sit and grunt, and grunt and sit for an hour! I get nowhere! My bowels are like a rock!" "It's the same with me," agreed the second. "Every morning, up at 6:30 and into the bathroom where I sit for an hour—maybe two! Sometimes I think I'm going to die!" The second man then graciously yielded the floor to the third. "So how is it with you, Fred?" "Well," said Fred with some hesitation. "I've got no problem moving my bowels. Every morning—6:30—like clockwork
I have an enormous bowel movement!" "Why that's wonderful!" exclaimed his friends. "Not so wonderful!" Fred replied sadly. "I don't get up until 7:00!"

31. Q. Why did God make man before He made woman?  
A. Because He didn’t want any advice on how to do it.

32.
33. A man goes fishing and reels in an urn. He rubs it clean and a beautiful female genie appears. "For releasing me from my imprisonment," she says, "you may have only one wish. Take your time and think it over carefully, for anything you want may now be yours." Looking her up and down lasciviously, he replies, "I wish my prick was so long it would touch the ground." In an instant, he finds he has two-inch legs.

34. *Wife:* "I had a checkup at the doctor today, dear, and he told me I had the most beautiful breasts he had ever seen."

*Husband:* "Oh, yeah—and did he say anything about your fat ass?"

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

35. *Q.* How do you teach a child to put on his underwear?

*A.* Yellow in front, brown in back.

36. The efficiency expert is checking the carpenter’s work. After watching him for a while, he says, "If you would put another blade on your plane, you could shave the wood on the backstroke as well as the forestroke. And if you tied a saw to your knee, you could cut the next piece of wood while you were planing the first." "Right," says the carpenter. "And if you stuck a broom up your ass, you could sweep the floor while you’re telling me what to do."

37. A first grade teacher rewards each child with a piece of candy. They all say "Thank you, teacher," except one little boy, who says, "I don’t want no goddamn candy!"

Next day she gives each child some ice cream. The same little boy says, "I don’t want no goddamn ice cream!"

Appalled, she calls his mother to school and asks her to watch her child’s behavior. When the teacher then offers each child a cookie, the little
boys says, "I don't want no goddamn cookie!"
Flustered, the teacher asks his mother what she should do. "To hell with the bastard!" says the mother. "Don't give him any!"

38. Q. What's eight miles long and has an IQ of forty?
A. The St. Patrick's Day Parade.

39. The trouble with political jokes is that they often get elected.

40. "Mind you, he's been very quiet since his accident."

41. It's not what you don't know that hurts you. It's the things you know for sure that aren't true.

42. Q. Why don't Puerto Ricans go on strike?
A. No one would notice the difference.

43. Q. Why are a woman's legs like manure?
A. They have to be spread before they do any good.
45. Mom and pop are celebrating their fiftieth anniversary. "Congratulations!" says their eldest son. "I'm sorry I didn't bring you a present, but I have to confess that I spent too much on my new Porsche." "Ditto," says their youngest son. "But I confess that I spent it all on my trip to Tahiti."

"Well," says their father, "I also have a confession to make. When your mother and I fell in love, we were so poor we couldn't afford a marriage license." "Are you telling us we are bastards?" say the sons. "Yep," says their mother. "And cheap ones at that!"

46. "Boy, did I have some hot chili last week!"

"Oh, yeah, how hot was it?"

"Man, it was so hot that for three days I had to wipe my ass with an Eskimo Pie!"
47. A man consults a doctor because of exhaustion. When the doctor asks him his weekly routine, he says, "Well, I make love to my wife once a week, I make love to my secretary twice a week, and I make love to my girlfriend three times a week." "My God!" exclaims the doctor. "You'd better take yourself in hand!" "Oh," says the man, "I do that four times a week."

48. A guy at a bar offers to fart "The Star-Spangled Banner" for a free drink. "Okay," says the bartender. "Let's see you do it." So the guy takes a crap on the counter. "Hey!" shouts the bartender. "What do you think you're doing?" "Well," says the customer, "even Sinatra has to clear his throat!"

49. God has just had one of His angels construct the first man and woman. Looking over the job, He says, "Very good. You have done it as I wished. However, you have forgotten their genitals. Here they are. Please put them in place and don't forget—give the cunt to the stupid one."

50. Simplified IRS form:

1040 U.S. Individual Income Tax Return

Name: ____________________________
Address: __________________________
Social Security number: ____________
How much money did you make? _______
Send it in.
Dept. of the Treasury—Internal Revenue
THE LAST 5 QUESTIONS, I PROMISE

1. Please give me the number of your favorite joke. ______

2. Overall, do you consider yourself a funny person? Please rate yourself from 1 (not funny) to 5 (very funny). ______

3. A person demonstrates their sense of humor in different ways.

   a. Please rate yourself as an appreciator of humor. (A rating of 1 indicates little appreciation for others' attempts at humor, a rating of 5 indicates much appreciation and interest in others' humorous comments.) ______

   b. Please rate yourself as a producer of humor. (A rating of 1 indicates rare attempts at producing humor, while a rating of 5 indicates that you constantly try to make humorous comments in a wide variety of situations.) ______

4. Which of the following terms help describe your sense of humor? Check all that apply.

   ___ sweet or gentle ___ nonsensical or playful
   ___ sarcastic or caustic ___ philosophical ___ quick
   ___ raunchy or lewd ___ risqué ___ camp
   ___ sick ___ satirical ___ other (add any other term)

   ______________________ ______________________ ______________________

5. Please tell me one of your favorite jokes or a joke you have recently heard which you enjoyed.
THE OCCUPATIONAL COPING HUMOR SCALE

This measure is designed to assess the degree to which people report using humor as a means of coping with stressful occupational or school related experiences. All items are answered on a 4-point scale where

1 = strongly disagree
2 = mildly disagree
3 = mildly agree
4 = strongly agree.

Please write in any comments further describing your response. For example, particularly applicable situations, why you chose your specific response, or any other pertinent comments.

1) I often lose my sense of humor when a stressful situation occurs at work or school. Comments:
   1 2 3 4

2) I have often found that my daily occupational or school related problems seem greatly reduced when I tried to find something funny in them. Comments:
   1 2 3 4

3) I usually look for something comical to say when I am in a tense working situation. Comments:
   1 2 3 4

4) Whether or not I laugh or joke at work does not seem to make any difference in how my day goes. Comments:
   1 2 3 4

5) It is usually difficult for me to find something to laugh or joke about in trying situations. Comments:
   1 2 3 4

6) It has been my personal experience that humor is often a very effective way of coping with job or school related stress.
   1 2 3 4

If you marked response 3 or 4 to statement #6, please write on the back of this page a few sentences describing how humor has been effective for you in dealing with job or school related stress.
APPENDIX C
Peer Rating for Occupational Humor Coping

This measure is designed to assess the degree to which your co-worker (C.W.) uses humor as a means of coping with stressful occupational or school related experiences. Your responses should reflect what you see as your C.W.'s typical behavior. All items are answered on a 4-point scale where

1 = strongly disagree
2 = mildly disagree
3 = mildly agree
4 = strongly agree

1) C.W. will often lose his/her sense of humor when a stressful situation occurs at work or school.

   1  2  3  4

2) Often C.W. seems to be able to reduce the impact of daily occupational or school related problems by trying to find something funny in them.

   1  2  3  4

3) C.W. usually looks for something comical to say when he/she is in a tense working situation.

   1  2  3  4

4) Whether or not C.W. laughs or jokes at work does not seem to make any difference in their attitude or performance on the job.

   1  2  3  4

5) It usually appears difficult for C.W. to find something to laugh or joke about in trying situations.

   1  2  3  4

6) It has been my experience with C.W. that humor for him/her is a very effective way of coping with job or school related stress.

   1  2  3  4

Feel free to make any further comments regarding your co-worker's use of humor occupationally or in school related situations. When you are done place this form in the envelope provided and seal it. Thank you for your cooperation.
The Life Experiences Survey

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. Please check those events which you have experienced in the recent past and indicate the time period during which you have experienced each event. Be sure that all check marks are directly across from the items they correspond to.

Also, for each item checked below, please indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. That is, indicate the type and extent of impact that the event had. The rating key is as follows:

-3 = extremely negative impact
-2 = moderately negative impact
-1 = somewhat negative impact
0 = no impact either positive or negative
+1 = slightly positive impact
+2 = moderately positive impact
+3 = extremely positive impact

<table>
<thead>
<tr>
<th>Event</th>
<th>0 to 6 mo</th>
<th>6 mo to 1 yr</th>
<th>RATING</th>
</tr>
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<tbody>
<tr>
<td>1. Marriage</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>2. Detention in jail or comparable institution</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>3. Death of spouse</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>4. Major change in sleep habits (much more or much less sleep)</td>
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<td>-2</td>
<td>-1</td>
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<td>5. Death of close family member:</td>
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<td>a. mother</td>
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<tr>
<td>b. father</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
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<tr>
<td>c. sister</td>
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<td>-2</td>
<td>-1</td>
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<tr>
<td>d. brother</td>
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<td>-2</td>
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<td>-2</td>
<td>-1</td>
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<tr>
<td>f. grandfather</td>
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<td>-2</td>
<td>-1</td>
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<tr>
<td>g. other (specify)</td>
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<td>-2</td>
<td>-1</td>
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<tr>
<td>6. Major change in eating habits (much more or much less food intake)</td>
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<td>-2</td>
<td>-1</td>
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<td>7. Foreclosure on loan or mortgage</td>
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<td>-1</td>
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<td>8. Death of close friend</td>
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<td>-1</td>
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<td>9. Outstanding personal achievement</td>
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<td>10. Minor law violations</td>
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<td>11. Male: wife/girlfriend's pregnancy</td>
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<td>Female: Pregnancy</td>
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<td>12. Changed work situation (responsibility, conditions, hours)</td>
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<td>13. New job</td>
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<td>16. Trouble with employer</td>
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<tr>
<td>17. Trouble with in-laws</td>
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<td>19. Major change in closeness of family members (increased or decreased closeness)</td>
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</tr>
<tr>
<td>20. Gaining a new family member (birth, adoption, family member moving in, etc.)</td>
<td>-3 -2 -1 0 +1 +2 +3</td>
<td></td>
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</tr>
<tr>
<td>21. Change of residence</td>
<td>-3 -2 -1 0 +1 +2 +3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Marital separation (due to conflict)</td>
<td>-3 -2 -1 0 +1 +2 +3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Major change in religious activity (increase or decrease)</td>
<td>-3 -2 -1 0 +1 +2 +3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Marital reconciliation with mate</td>
<td>-3 -2 -1 0 +1 +2 +3</td>
<td></td>
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</tr>
<tr>
<td>25. Major change in # of arguments with spouse (a lot more or a lot less)</td>
<td>-3 -2 -1 0 +1 +2 +3</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>0</td>
<td>7 mo</td>
<td>to</td>
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</tr>
<tr>
<td>26. Change in spouse's work outside the home (new job, ceasing work, etc.)</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>27. Major change in usual type &amp;/or amount of recreation</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>28. Borrowing more than $10,000</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>29. Borrowing less than $10,000</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>30. Being fired from job</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>31. Male:wife/girlfriend having an abortion</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>Female: Abortion</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>32. Major personal illness or injury</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>33. Major change in social activities, e.g., parties, movies, visiting(increased or decreased participation)</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>34. Major change in living conditions of family (new home, remodeling, deterioration, etc.)</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
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<tr>
<td>35. Divorce</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>36. Serious illness or injury of close friend</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>37. Ending of formal schooling</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>38. Separation from spouse (due to work, travel, etc.)</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>39. Engagement</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>40. Breaking up with girl/boyfriend</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>41. Leaving home for the first time</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>42. Reconciliation with girl/boyfriend</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>Other recent experiences which have had an impact on your life.</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
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<td>43.</td>
<td></td>
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<td>44.</td>
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<td>45.</td>
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</tbody>
</table>
CARTOON CAPTIONING

I KNOW IT IS DIFFICULT TO BE FUNNY ON DEMAND. I AM NOT LOOKING FOR COMIC GENIUS - JUST FOR SOME REMARKS THAT YOU THINK MIGHT BE FUNNY CAPTIONS FOR THE FOLLOWING CARTOONS.

IN ORDER TO GET YOURSELF IN THE MOOD, I SUGGEST YOU RELAX, HAVE SOMETHING TO EAT OR DRINK, AND LET YOURSELF GO AS MUCH AS POSSIBLE. FEEL FREE TO PUT DOWN WHATEVER THOUGHTS COME TO MIND AND DON'T WORRY IF YOUR ANSWERS SEEM SILLY OR STRANGE. ANY TOPIC IS FAIR GAME.

THANKS FOR TRYING. HOPE YOU HAVE SOME FUN.
Write a funny inscription for your tombstone.
APPENDIX F
Structured Interview (with pre-training group)

1. What job(s) have you had previously?

2. Have you used humor to cope with the stress of your job?
   How was it helpful (i.e., what specifically does humor help you deal with)?

3. Which of the following humor types did you and your co-workers tend to use most often? Sick or black, sexual, ethnic, nonsense, and put-down.

4. Since you have begun your current job has your sense of humor changed? Humor increase or decrease? How?

5. Is your use of humor different in this job than in your previous ones? How?

6. Do you feel your co-workers also share this humor? Was it encouraged in any way?

7. Can humor be overused? How?

8. Rank the following coping strategies for their value in dealing with your daily job stress (1 to 6).
   Talking with co-workers
   Talking with family and friends
   Using humor
   Recreation (i.e., exercise or hobby)
   Quiet time for oneself
   Socializing with friends

9. What would you say are the most important points you've made regarding your use of humor?
Structured Interview (with post-trained and experienced paramedic groups)

1. Do you use humor to cope with the stress of your job/training? How is it helpful (i.e., what specifically does humor help you deal with)?

2. Which of the following humor types do you and your co-workers/fellow students tend to use most often? Sick or black, sexual, ethnic, nonsense, and put-down.

3. Do you share this type of humor with family and friends? On the whole, do they enjoy this humor? Do you find this brand of humor job specific?

4. Did your sense of humor change between the beginning and the end of training? How? Humor increase or decrease? Did it change any further with experience (for experienced paramedics only)? How?

5. Did the sense of humor in others in your training group change? If so, was this formally taught? Was it picked up informally from more experienced paramedics? Do most paramedics participate in this use of humor? If they don't, are they accepted? Do they perform their job as well? Do they seem more stressed?

6. Do you use humor with patients? In what situations? Is it helpful for you or the patient or both? Please describe.

7. I'm going to name some types of cases. Give them a 1, 2, or 3 rating for how frequently you and the people you work with would use humor (1=rarely, 2=sometimes, 3=often). Very sick child (5yr. old with croup) Psychiatric patient (schizophrenic with delusions) Code in an 80 yr. old patient Code in a 20 yr. old patient Bad auto accident with only minor injuries Repeater (street person, probably alcoholic) Heart attack in a 50 yr. old male In what other situations is humor most helpful?
8. Can humor be overused? How?

9. Rank the following coping strategies for their value in dealing with your daily job/training stress (1 to 6).
   - Talking with co-workers
   - Talking with family and friends
   - Using humor
   - Recreation (i.e., exercise or hobby)
   - Quiet time for oneself
   - Socializing with friends

11. What would you say are the most important points you've made regarding your use of humor?
APPENDIX G
INFORMED CONSENT

Project Title: An Exploratory Investigation of the Use of Humor as a Coping Strategy for Dealing with Stress Among Paramedics

I, __________________________, hereby consent to participate in a research project being conducted by Lisa Rosenberg.

The purpose of this project is to investigate the development of humor in an occupational situation. Participation in this study involves the completion of four brief paper and pencil questionnaires. Responses are completely anonymous. Any inquiries concerning the procedures to be used will be fully addressed. There are no known potential discomforts or risks involved in my participation.

I understand that my participation in this research project is completely voluntary and that any information given is strictly confidential. I further understand that no risk is involved but that I may, in any case, withdraw from participation at any time without prejudice.

__________________________ (Signature)

__________________________ (Date)
The dissertation submitted by Lisa Rosenberg has been read and approved by the following committee:

Dr. Ronald R. Morgan, Director
Associate Professor, Counseling and Educational Psychology, Loyola

Dr. Jack A. Kavanagh
Professor, Counseling and Educational Psychology, Loyola

Dr. Carol G. Harding
Associate Professor, Counseling and Educational Psychology, Loyola

Dr. Carrol Gold
Associate Professor, Nursing, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

8/24/89
Date

Director's Signature