Relationship of Life Change, Maladaptive Aggression, and Upper Respiratory Infection in Male College Students

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It was hypothesized that the development of a serious upper respiratory infection (URI) for which treatment is sought is antedated by a maladaptive reaction to distressing life conflicts. Twenty-nine male college students who sought relief from sore throats at a college health service were compared with 29 symptom-free students randomly selected from the college directory. The subjects were given a series of questionnaires and a projective test to measure the incidence of distressing life changes, patterns of maladaptive coping, and unpleasant affect. The results indicated that significantly more disappointment, failure, and role crisis appeared in the lives of individuals who became ill and sought help than in "normals." Defiant coping patterns and heightened unpleasant affect also distinctly characterized the URI group.

IT HAS BEEN OBSERVED that, even in times of epidemics, not all people become ill. The development of disease is a selective process affecting particular people more than others and is, at times, relatively independent of natural environmental factors.[1-4] Variables exist which serve to bolster the organism's defenses against disease, and these are more than a function of constitutional resistance alone. Vulnerability or susceptibility to illness is an organismic factor which encompasses both inherited patterns and acquired techniques for coping with stress. The way in which a person perceives a situation of crisis, the way in which he adapts to it, or copes with it, or attempts to resolve it, also may be determinants of disease resistance.

This report is concerned with upper respiratory infection (URI) as a paradigm of acute somatic illness. Specifically, we have studied patients with symptoms which were brought to the attention of physicians. Either bacterial

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or viral agents are assumed to be the immediate etiologic factors in precipitating such symptoms. Our focus, however, is on the psychosocial factors which may be considered as predisposing the individual to becoming ill at a particular point in time.

To illustrate the complementary nature of these factors, a recent study by Kapikian *et al.*[5] reported that on a college campus, a peak of infection occurred soon after the beginning of the academic year. Although these investigators emphasized the importance of the dissemination of agents brought into the population by students from different areas, it is conceivable that the students became ill precisely at a time (the beginning of the school year) when new life situations required novel modes of adaptation.

Serious URI in college students may be hypothesized as being antedated consistently by unresolved distressing life changes. Our speculation is that those individuals who become ill are the ones who have perceived their current life situation as threatening but have not developed effective coping mechanisms for dealing with this challenge. Thus, two psychosocial factors are postulated as being involved in predisposing a student to an URI which is seen as requiring medical care: the perception of a life event as personally threatening or distressing, *and* the failure to deal with this situation in an adaptive fashion.

This hypothesis, stated more completely, is that individuals become ill and require medical treatment when: (1) a distressing or upsetting life situation is experienced, which (2) cannot be resolved effectively, resulting in (3) a sense of helplessness and the development of unpleasant affect, thereby (4) weakening the organism's resistance to disease, thus (5) making him more vulnerable to ubiquitous pathogenic agents.

Previous studies have supported various parts of this total conceptualization. Summerskill and Darling[3] have investigated the incidence of URI in a college population. These accounted for 25% of all visits to the student health service, according to their findings. They found, during a 4-year period, a consistent pattern of rising incidence immediately following each recess from campus. This incidence was unrelated to weather conditions or to high or low periods of campus stress. The highest percentage of complainers were those who came to college, living away from home at relatively early ages. The investigators found that it was the same group of patients who returned over and over; one-third of the college population accounted for most of the complaints. It was hypothesized that students who did not report for treatment at the clinic were more likely to be self-reliant and independent, whereas those who did come for treatment were likely to be seeking emotional reassurance during a difficult period of adjustment to separation from home.

Change or alteration in social situations has been often noted as antecedent conditions to a variety of illnesses. Rahe *et al.*[6] have used a Schedule of Recent Experience to document restrospectively major social readjustments in 7 patient samples and 2 control groups. They found that groups with disease tended to have clusters of social stresses in the 2 years before the onset of illness. Rahe and Holmes[7] reported a further refinement of this technique, using a ratio scale to categorize life changes as "normal," "moderate," and "substantial." When the scale was used in a predictive way, individuals who reported experiencing quantitatively rated moderate-to-substantial life changes were found to be very likely to become ill within a 2-year period.

Hinkle *et al.*[1] investigated the factor of differential susceptibility to illness in a group of Chinese graduate students and professionals. After collecting retro-

spective information covering a 20-year period, it was found that the distribution of episodes of illness was not attributable solely to chance factors. Those people who tended to have a high frequency of illness commonly viewed their lives as difficult, demanding, and unsatisfactory, in contrast to a group with a low frequency of illness. It was speculated that the defensive reactions to threat mobilized by these individuals evoked physiologic changes which led to a heightened vulnerability to illness.

Canter *et al.*[8] in a predictive study within a work environment found that psychological vulnerability was significantly related to the frequency of complaints (visits) to a medical clinic. Vulnerability was defined, operationally, in terms of responses to the hypochondriasis, morale-loss, and ego-strength scales of the MMPI, as well as to the Cornell Medical Index. The vulnerable group was seen as reacting hypersensitively to fluctuations in physical states which might be ignored or tolerated in the nonvulnerable group. Thus, the vulnerable individual might be seen as more likely to seek medical treatment than the nonvulnerable one.

Cluff *et al.*[9] studied essentially the same population as in the above investigation during an epidemic of Asian influenza. Using the same measures of vulnerability, they found that 26 subjects came to the dipensary during the epidemic with verifiable symptoms of influenza. This represented a disease rate of 5.4% among the 480 subjects in the study. These cases represented 11.4% of the vulnerable and 3.5% of the nonvulnerable groups. The former individuals were found significantly more likely to become ill than the latter ones. It was concluded that psychologically vulnerable persons seek medical attention during infection more commonly than nonvulnerable individuals because of their higher concern about illness.

Materials and Methods

This report represents a portion of a larger study of the relationship of life change and adaptive mechanisms to a variety of respiratory illnesses. This aspect of the study involved a comparison between 29 male college students who sought medical attention for symptoms of sore throat and 29 students who claimed to have been free of such symptoms for at least a year and never to have suffered from a major psychiatric or psychosomatic disorder during their lives.

The groups were comparable for age, marital status, high school grade average, college class, place of residence, position in the family, and socioeconomic status of the father. The median age of the sample was between 19 and 20 years. Ninety-three percent were single. Sixty-eight percent had at least a Grade B average in their high school work. Fifty-eight percent were lower classmen in college. Forty-nine percent lived in the college dorms, and only 18% were at home with their families. Forty-five percent were the oldest siblings in the family, and 18% were the only children. Seventy percent of the fathers were in socioeconomic Classes I and II, as classified by Warner *et al.*[10]

The subjects were selected on a random basis from either the records of the student health service (the URI group) or from the college directory (the normal group). In the former instance, a student was called within 2 weeks of his visit to the health service and was asked to participate. All subjects were offered a remuneration of $20 for their time and effort. Only those students were contacted who had been diagnosed by the clinic physicians as having pharyngitis, laryngitis, tonsillitis, or bronchitis. Once in the study, a student was examined by an internist on our staff to confirm the initial diagnosis in the URI sample and to establish freedom from symptoms in the normal group. Of the random sample of students called who were eligible to participate, 26% of the URI and 29% of the normal potential groups were unwilling to be involved in the study. Consequently, those who volunteered were representative of the majority from each population.

Subjects were seen on four separate oc-

casions, ordinarily on a once-a-week basis. In the case of the URI sample, this followed directly after the onset of illness, so that retrospective distortion of life events would be minimized.

Immediately preceding the first session, before any contact had been made with the examiner, the subject completed a Life Change Inventory (LCI). This instrument was suggested by the work of Rahe *et al.*[6, 7] The subject was asked to check the items from a list of 47 and indicate the dates for life events which he had personally experienced during the past year. The 47 life situations were selected for their relevance to college students and were classified beforehand into the following categories: (1) an experience of personal failure or a role crisis (19 items), (2) a loss of, separation from, or serious illness in a person important to the subject (18 items), and (3) an increase in personal responsibilities or positive achievements (10 items).

Examples of Category 1 include: being in danger of flunking out of college because of poor grades; having been turned down by a fraternity of choice; having been defeated for school office; being unsure about a choice of career, while feeling pressured to make a decision; and finding oneself without beliefs to govern one's life. Category 2 is illustrated by the following: having taken a summer job away from home for the first time; a close relative having passed away; a sibling having been seriously injured in an accident; and a widowed parent having remarried. Category 3 was represented by: having started college; having been recently married; having been accepted by a desired graduate or professional school; and having won a scholarship.

Techniques for measuring styles of adaptation to challenging life situations included both a questionnaire and a projective test. The former was administered following the second session. Two distinct forms of faulty coping mechanisms were identified. The first is characterized by *passive, compliant* traits. When faced with pressure or frustration, the individual submits to or accepts the unpleasant circumstances, regardless of the self-defeating consequences. The second is characterized by *active, defiant* traits. When faced with a distressing situation, the individual rebels or strikes back angrily. This pattern is associated with hostile, impulsive, and danger-seeking behavior. The questionnaire included 8 items measuring the former trait and 12 items measuring the latter.

This technique, the Boston University Personality Inventory (BUPI), has been described in previous reports.[11-13] Items are scored from 0 to 5, representing responses ranging from "entirely false" to "entirely true." The range of scores on this inventory for submissiveness is 0–40 and for defiance is 0–60.

Examples of passive, compliant items are: "I frequently take other people's advice." "In this world you often have to depend on others to take care of you." And "I work under the principle that the boss is usually right." Examples of defiant, impetuous items are: "I often have had to take orders from someone who did not know as much as I did." "I often go out of my way to win a point with someone who has opposed me." "When I was a child, I would always accept a dare." "When I get bored, I like to stir up some excitement." And "I like to take risks and chances."

The projective measure for styles of coping was the Adolescent Conflict Test (ACT), described in a previous report,[14] which was administered preceding the fourth session. Essentially, the technique consists of presenting 20 conflict situations depicting problems occurring between parents and children, among peers, and between authority figures and students or subordinates. The subject is asked to imagine he were in the situation which is described and to report in writing how he would feel and what he would say or do if he were so involved.

Examples of some of the conflict situations presented to the subjects are: "Bob's mother asks him not to play his phonograph because it may get her into trouble with the neighbors." "John asks his father for suggestions about a choice of a college, but his father never went to college himself so he feels he can't be of any help." "Herb wants to join a fraternity very much, but the boys in the group seem cold to him without overtly rejecting him." And "The professor appointed Tom as his assistant but gives

him only trivial work although he promised Tom more important duties when he took the job."

Responses of submissiveness, self-punitiveness, or self-derogation were scored as indicative of a passive, compliant pattern of adaptation. Typical of this style of response are: "Do nothing." "Feel hurt and rejected, but keep silent." "Feel uncomfortable, but accept the situation as it is." "Give in, and let them have their way." "Meekly submit to unjust abuse." And "Feel guilty and take the blame."

Responses of rebelliousness, striking out against authority, or sneaky retaliation were scored as indicative of defiant patterns of coping. Examples of this style of adaptation are: "Get even somehow." "Yell back." "Insult your mother." "Lose your temper and storm out." "Argue with your father, and call him names." And "Promise to obey, but secretly do what you want, while keeping resentment hidden."

Responses were scored by a team of 4 judges who arrived at a consensus without knowledge of which diagnostic group a subject was in. Each subject was assigned a code from a list of random numbers. These coded responses were scored as a set for each conflict situation, so that a subject's reactions to other cards would not influence the decision for any specific stimulus (avoiding a halo effect). In order to limit the influence of contiguous responses in a series, the order was rearranged before each rating session. The identity of subjects was further hidden by scoring the responses from a much larger sample which included members of other diagnostic groups not involved in this report. Using these procedures, we felt confident that unconscious rating bias would be minimized.

Responses were categorized and scored within the range of 1–3. The more intensely and consistently a response characterized a concept, the higher was the score assigned within that category. Responses were scored as illustrating assertive, detached, or withdrawn behavior, as well as submissive, overtly rebellious, and passive-aggressive patterns. If a response suggested ambivalence or indecisiveness, 2 concepts were used to score it. Generally, 1 category was sufficient to rate each response.

Self-rating scales were used after the first and second sessions to measure the intensity of unpleasant affect. The first of these, the Manifest Affect Rating Scale (MARS), consists of 87 items: 39 items reflecting pleasant affect (such as joy, security, self-respect, and optimism); 24, depressive; 12, hostile; and 12, anxious affect.[15] Each item is scored from 0 to 3, representing the range of response from "never" to "intensely" (having experienced an affect during the preceding week). The BUPI, given after the second session, also contains a series of items reflecting the following unpleasant affects: depression, hostility, and anxiety. The range of scores on this inventory for each of these concepts is 0–20. These items reflect characterologic or more stable aspects of emotional expression, not identified with current status alone but true of the individual over a period of time.

In accordance with our hypotheses, the URI group was expected to report significanlty more evidence than the normal group of: (1) a recent life change, (2) maladaptive coping styles, and (3) unpleasant affect.

Results

Life Changes

A total of 355 life changes was reported by all subjects, of which 204 (57.5%) were experienced by the URI group. The greatest group differentiation occurred within the context of the first category, representing a role crisis, personal failure, or disappointment. The URI group reported 104 such events as having occurred within the year prior to the onset of illness, whereas the normals reported only 60 situations of this type. In other words, 63% of the personal failure or uncertainty experiences were reported by the URI subjects. A 2×2 chi-square analysis, correcting for discontinuity, comparing the incidence of Category 1 and Categories 2 and 3 for the 2 groups, resulted in the finding that the difference was greater than might be expected from chance factors alone (chi square $= 3.91$, $p < 0.05$).

This finding suggested that role crises

were associated with the occurrence of URI, whereas a change in the family structure or increased responsibility were not related. Responses to the 19 items in Category 1 were compared statistically, using a t test. The mean scores and standard deviations are shown in Table 1. The analysis indicated that individuals who develop a serious URI and seek treatment for it are more likely to have experienced personal setbacks during the previous year than are persons who remain symptom-free ($t = 3.30$, $p < 0.01$).

In fact, the temporal association between the experience of distressing life events and the onset of symptoms is often closer than this period of a year. The dates of the events reported were found for 63% of the subjects to have occurred within 2 months prior to the time of seeking medical care. The series of experienced events may be interpreted as representing a continuum of failures and disappointments accumulating over the course of the year prior to the occurrence of illness.

The most frequent issue cited by the subjects involved unsureness about identity and took specific form as an uncertainty about one's college major, career choice, or future. The second most important issue involved a changing of values and a sense of lack of support either from parents or peers (a feeling of aloneness and isolation).

Maladaptive Coping Styles

The questionnaire (BUPI) and projective technique (ACT) elicited information regarding an individual's professed style of dealing with pressure or frustration. Two types of patterns were examined.

TABLE 1. COMPARISONS BETWEEN NORMAL AND URI GROUPS ON ALL DIMENSIONS

	Groups		
	Normal	*URI*	
Inventory	*Mean ± S.D.*	*Mean ± S.D.*	*t test**
LCI			
Failure or role crisis	2.07 ± 1.67	3.59 ± 1.80	3.30†
BUPI			
Passive, compliant traits	19.14 ± 3.99	19.10 ± 5.16	0.03
ACT			
Compliant coping	15.52 ± 5.78	14.62 ± 5.19	0.62
BUPI			
Defiant, impetuous traits	27.79 ± 6.56	32.17 ± 4.47	2.96†
ACT			
Defiant coping	5.59 ± 3.94	7.72 ± 5.27	1.73‡
BUPI			
Depression	5.31 ± 3.54	8.83 ± 3.82	3.63§
Hostility	5.59 ± 3.30	8.31 ± 3.08	3.22†
Anxiety	6.38 ± 3.09	9.97 ± 3.06	4.38§
MARS			
Depression	10.55 ± 9.17	22.62 ± 11.48	4.39§
Hostility	5.90 ± 5.69	10.21 ± 4.99	3.06†
Anxiety	7.00 ± 5.42	12.17 ± 6.04	3.40†

* Two-tailed t tests; df equals 56.
† $p < 0.010$.
‡ $p < 0.100$.
§ $p < 0.001$.

As shown in Table 1, passive, compliant behavior did not differentiate between the groups. Neither technique measuring this dimension indicated that individuals who develop serious URI are different from ones who remain symptom-free.

Defiant, danger-seeking behavior was found to differentiate the groups on both inventories. As shown in Table 1, the URI group evidenced significantly greater signs of this characteristic than did the normals. When faced with a problem situation, individuals who develop serious URI and seek medical attention are the ones who are more likely to act out defiantly than are those who do not become ill.

With the projective technique (ACT), the majority of responses evoked by the stimuli were either assertive or compliant. In the normal group, 14% of the response total reflected either overt or covert defiance. This type of response was seen in 18% of the URI sample's records.

Within this context, the intensity scores of the URI group for overtly defiant patterns of response accounted for 62% of the total. The conflict situations which most differentiated the 2 groups involved problems within parent-child relationships. Of situations depicting fathers rejecting their sons, 87% of the rebellion scores were in the URI group. When situations depicting dominating mothers were responded to with defiance, 71% of these scores were attributable to URI subjects. Passive-aggressive patterns were less frequent in both groups. The URI subjects produced 52% of these patterns. Consequently, the greatest portion of the defiant type responses by URI subjects were of an open, angry, and retaliatory nature.

Unpleasant Affect

On all measures of unpleasant affect, the URI group reported significantly greater signs of distress than did the normals. Whether reporting current or long-term feelings, the URI subjects manifested more depression, hostility, and anxiety than did the normals. The mean scores and standard deviations are shown in Table 1. No specific unpleasant emotion was found to characterize distinctively the URI group; all unpleasant emotions were elevated.

Consistency of Reaction Patterns

Given the findings that, on the average, individuals who develop serious URI and seek treatment are more likely to evidence defiant coping styles and to manifest unpleasant affect than symptom-free persons, we may determine how consistently these patterns are discriminating on a subject-by-subject basis.

Several methods are available for determining the consistency of individual response within a group. Our preference, used in previous studies,[13, 16] is to sum all coping and affect scores and to dichotomize the range at the median. For this sample, the range of total scores was from 38 to 178. Since there were equal numbers of subjects in each group, it would be expected by chance alone that half of each group would fall above, and half of each group would fall below the median. The findings were that only 6 of 29 normals scored above this criterion, whereas 23 of 29 subjects with URI equalled or exceeded this value. Overall, 46 of the 58 subjects or 79% scored in accordance with the expectation that these factors are discriminating. Chi-square analysis of this distribution with 1 degree of freedom yielded a value of 17.66, which is significant at the 0.001 level.

A related test involves the rank ordering of the unpleasant affect scores, independently of the defiant coping style scores, and then using the average rank of the two as the measure of the outcome (rather than the total score). This

method is slightly more conservative, and the results showed 7 false positives and 7 false negatives. Overall, 44 of 58 subjects or 76% were accurately differentiated. The chi square for this distribution equalled 13.52, which is also significant at the 0.001 level of confidence.

Further attesting to the consistent difference between the 2 sample groups is the observation that of the 10 highest scores on the total scale, 7 were achieved by URI sufferers. Of the 10 lowest scores, 9 were evidenced by members of the normal group.

Illustrative Case Histories for URI Group

To illustrate the types of unresolved life situations which were reported during the interviews, and to indicate that the unpleasant affect was developed in conjunction with these conflicts, the following examples of URI subjects are presented.

Subject 1

Subject 1 scored fifth highest on the total scale. He had been accused of cheating at his original school and had been arrested for stealing. He had been on probation and would have been threatened with expulsion if he had not transferred. At his present college, he felt lonely and isolated. He complained of the "drunks, tough guys and vandals" in his dormitory, although he himself was currently breaking college rules by drinking in his room. The major crisis occurred just prior to his becoming ill. He had apparently irritated his roommate to such a degree that the boy ran from his room, screaming for help, asking to be separated from the subject. The other boy apparently had a "nervous breakdown" and left school. This incident intensified the subject's feelings of being bad, guilty, and unwanted, but he continued to discount this and to blame others, while remaining socially isolated.

Subject 2

Subject 2 ranked eleventh on the total scale. He had just moved from his home to an apartment, leaving his invalid mother alone. The apartment was being paid for by his father who was separated from his mother. By moving out, the subject hoped to force the father to take more responsibility in caring for the mother and to get himself off the hook. The subject was quite concerned about his falling grades and his indecisiveness about pursuing a course in either business administration or music. He had just formed a musical combo but was dissatisfied with the lack of cooperation afforded him by his peers; he tended to let other boys exploit him in order to have their companionship. The major crisis was quite unique: His father was involved in gangland operations and was marked for murder. His dependency on his father for separating from his mother was in great jeopardy, and yet, he was completely helpless to resolve this issue.

Subject 3

Subject 3 ranked seventeenth on the total score. This student had frequent fits of rage which were triggered by apparently minor incidents and which made him feel he was losing his sanity. The subject had wanted to enlist in the armed services, but his parents forced him to begin college. He was lonely and unhappy at school and considered his roommates to be "sloppy pigs." He harbored great resentment against his tyrannical and critical father but, with the start of college the month before, was considering going into the latter's field, although it was a great struggle for him to do well in those courses. His father recently had had a nonmalignant tumor removed, over which the subject denied concern. He reported dreams in which he would fight violently with his father but was unable to express these feelings directly. His fear of loss of control was further accentuated by the newfound freedom of college life.

Subject 4

Subject 4 was the twenty-third highest on the total score. He had started college 2

months previously and was under pressure to succeed, since his older brother had been expelled the preceding year. He had just received a series of poor grades, after having expected college to be easy. He was also concerned about the choice of a career but didn't seem to know how to go about making a decision; this issue was really secondary to his flunking out. Socially, he had been active but now felt guilty about stepping out on his steady girl back home. She had been putting pressure on him to be true, and he was facing a confrontation with her during the forthcoming Thanksgiving recess. Also, returning home would cause him to face his mother with his poor performance. She had made the most demands on him for success, since the other men in the family had either failed or left home. At the time of the onset of illness, the subject described himself as feeling discouraged, disappointed, and fed up with himself. He wished he could join the armed services rather than go home with bad news.

Subject 5

The fifth URI subject ranked near the bottom of the total score: fifty-third of 58 subjects. Subject 5 was an older student, a veteran, living at home with his alcoholic parents, and working part time as a clam digger and in a gymnasium. He presented a self-sufficient, unconcerned front, under which was a core of unresolved dependency, rooted in a family background of considerable punitiveness and lack of understanding. Immediately preceding the onset of sore throat symptoms, two major decision processes demanded resolution. He was due to be graduated in 2 months and had to decide whether to go into the technical or sales end of business. He had just taken vocational aptitude tests and was beginning to schedule interviews for full-time employment, but without having made a decision. The second major issue involved his being pressured by his steady girl friend to set a wedding date. Taking an office job and settling down meant to the subject that he would have to give up his relatively carefree life and his outdoor physical activities. ("Anything to be active and stay healthy.") In the past, office work for him had proven tiresome and dull, so that his failure to make a decision reflected his ambivalence toward committing himself to this type of life, although he realized that it was impossible for him to delay the inevitable indefinitely.

These cases illustrate the sense of personal failure, indecisiveness, helplessness, or interpersonal isolation which are characteristic of the life situations antedating the onset of sore throat symptoms in this sample. For comparison, some normal case histories are presented below.

Illustrative Case Histories for Normal Group

Subject 6

Subject 6 ranked forty-fifth on the total score. He was a senior in college who had had to adjust to three different cultures while growing up and had done so successfully. He was in the process of applying to graduate schools when interviewed, had just taken a part-time job, and had moved into his own apartment. His parents were living in another country, but his brother was close by at another college. He was actively involved in many aspects of college life and had been a leader of several organizations. He had integrated his own past life experiences by the choice of a career in international relations. There seemed to be little in his current life which was not being handled satisfactorily, and there was no evidence of distress.

Subject 7

Subject 7 ranked forty-sixth on the score list. He was taking courses in preparation for graduate school and was working part time to pay for his education. His background had been unpleasant in that both his parents were rigid, controlling, and cold people, but he had managed to extricate himself from them and to set out on a life of his own. He seemed active and energetic, eager to accept challenges, and wished to travel extensively to gain new experiences. He had formulated his career choice precisely but had been turned down by the one graduate school he had applied to in this country. He had been accepted by a

graduate school in Europe but elected to delay graduate study for a year in order to accompany a scientist and his family as an assistant on a round-the-world expedition. Very little distress was observed in this intellectualized individual.

Subject 8

Subject 8 ranked forty-seventh on the total scale. He was a veteran, enrolled as a sophomore in college, and recently married. He seemed to be bright and mature, functioning adequately both at school and in his marriage, and to be friendly and outgoing. He enjoyed persuading people and putting his ideas across. He frequently gave lectures on his travels and was running for school office at the time of the interviews. He seemed well-oriented about his future goals. His principal difficulty involved his relationship with his mother-in-law, who criticized him because his wife had to work while he went to school. He handled the situation assertively by discussing it with his mother-in-law and by planning to work during the summer. He was in no apparent distress.

These excerpts illustrate the less frequent incidence of role or career conflict, the lack of indecisiveness, and the absence of manifest distress found in the symptom-free group. The normals seemed energetic, active, and assertive, rather than either passive or defiant. The major defense seen was emotional detachment. Overall, their attempts at resolution of conflicts were effective and adaptive.

Discussion

Since the URI subjects were seen after the onset of symptoms had led them to seek medical care, the data are not as definitive as would be the case if a prospective analysis had been undertaken. This "concurrent retrospective" study was designed, in part, to establish the critical aspects of predisposition which seem related to the development of acute respiratory illness—an illness which is perceived by the individual as serious enough to require treatment. Having established these features with a good degree of efficiency, it is now possible to pursue a predictive investigation. Our ongoing research involves the follow-up of 100 male college students who were symptom-free at the time of initial evaluation. Using the criteria developed in this study, it will be possible to test definitively the roles of distressing life change and patterns of maladaptive coping as antecedents to the onset of illness. From this group, we will predict those most and least likely to become ill during the next year.

In this study, we have reported that students who were medically ill and sought treatment are more likely to report distressing life situations and unpleasant affect, and to use relatively inappropriate patterns of adaptation. We believe that these features antedated the seeking of treatment; however, final substantiation of this hypothesis must await the predictive portion of our investigation. Support for this hypothesis, however, has come from a number of previous studies. In particular, the reports by Canter *et al.*[8,9] indicated that the psychologically vulnerable individual is more likely to seek medical attention than the one who is judged beforehand as nonvulnerable. In this connection, it is obvious that both these prior studies and our own refer to illness studied within the context of the request for medical treatment. Whether any of these findings are relevant to individuals who become sick but do not seek treatment is unknown. Canter *et al.*[8] have stated that the psychologically vulnerable individual fundamentally does not develop physical disabilities any more often than others but is more hypertensive to the normal fluctuations in physical states, thus leading him to seek medical consultation more readily.

In developing our hypotheses, we incorporated both the predisposing per-

sonality features which have been emphasized by Canter *et al.*[8, 9] and the distressing life events which have been described by Rahe *et al.*[6, 7] With respect to the latter variable, we developed an inventory which requested that the subject identify those critical life events which had occurred during the year prior to the first interview. As reported, individuals with symptoms of sore throat indicated significantly more often than did a comparable group of normals that, during the past year, they had experienced events of personal disappointment and failure. Two aspects of this finding need to be amplified so that this finding may be seen as directly associated with the onset of symptoms in this population.

First, the majority of the inventoried life events reported (63%) occurred within a period of 2 months before the onset of symptoms. Since infectious respiratory disease requires a relatively short incubation period, we may expect that the most recent events are the most critical in associating these two factors. However, the second point is that these most recent events have to be understood as occurring within a context of longer term frustration. The data suggest that there is a gradual building up of failures and setbacks during the entire year prior to the illness. Schmale and Engel[17] have referred to this process as being "weighted down by an accumulation of past difficulties." Whatever the mediating biochemical, neuroendocrinous, or neurological factors for the onset of a disease, it is reasonable to assume that a continuous process of stressful experience wears down an individual's resistance, until a point is reached where the stress cannot be tolerated any longer. This final event can only be understood within the context of an accumulating process and, as such, represents the proverbial "last straw." Following a series of setbacks, even an otherwise minimal insult may be perceived by the individual as intolerable and trigger the reactions which may lead to somatic illness.

The major psychosocial elements associated with the development of an acute URI may be conceived of as independent of a specific pattern of maladaptation. The important factor is that a personally meaningful conflict is perceived as one which cannot be coped with immediately or successfully. The individual feels helpless or trapped, anticipating personal failure or disappointment, but with no active means conceived of as available to relieve the pressure.

These feelings, which seem to antedate the onset of illness in our sample, have been described by Schmale and Engel.[17] They view the development of somatic disease as the possible consequence of failure which is reacted to with helplessness or hopelessness. They call this state the "giving up-given up" complex. According to these investigators,[17, 18] the experience of failure may be responded to in a variety of ways. New and effective styles of adaptation may be developed, psychiatric distress may eventuate, or somatic disease may occur. The complex, itself, is neither necessary nor sufficient for a physical illness to develop but is seen as contributing to the emergence of such disease in individuals with vulnerable predispositions. In illustrating their concept, Schmale and Engel[17] describe a number of subjects who required hospitalization. It seems clear that "sick role behavior" is not a sufficient explanation in accounting for the somatic symptoms.

Similarly, we feel sick role behavior is not a central factor in understanding our own findings. First of all, the effects of illness had dissipated in most subjects by the time of our evaluation. Several of the psychosocial indexes, although independent of current complaints, differentiated individuals who had and had not been ill. The projective measure reflected characterologic styles of responding to

hypothetical conflict situations which are conceived of as part of a person's reactive repertoire and are presumed to be independent, usually, of specific situational crises. In this sense, the dependent variables were not merely another aspect of the current physical distress but seemed to reflect long-standing components of a personality. We would interpret these findings to reflect the problems in coping which characterized the symptomatic group and, accordingly, to see the URI as a "cover" for a more generalized life distress. Seeking help for medical problems may often be for many patients a ticket of admission to discuss their associated psychosocial distress, if the internist is willing to listen and to understand, as well as to prescribe medication. There are prospective psychiatric patients among this group, who are looking to gain assistance without losing face by admitting they are in emotional distress. In this study, the quasi-therapeutic intervention of the interviewing procedure prohibits an uncontaminated follow-up of the URI group to determine the spontaneous incidence of further decompensation or of successful adjustment. In any event, the cry for help (albeit with a sore throat) from these otherwise defiant students needs to be heard.

Acute somatic illness may be seen as a "first line" breakdown, which may prove beneficial in allowing the person time to recoup and plan new and more appropriate forms of adjustment. If his personal life situation remains distressing and unresolved following his time-limited removal from stress through acute illness, other symptoms may develop. As Schmale and Engel[17] have stated, if the sense of failure is conceived of as final and enduring, further decompensation may be expected.

Summary

Recent studies have suggested that not all individuals are equally vulnerable to infectious respiratory illness and that certain psychosocial factors play a part in determining who will become ill and who will remain free of symptoms. This investigation hypothesized that the development of serious URI is antedated by a maladaptive reaction to a distressing life conflict.

The clinical subjects were 29 male undergraduates who sought relief from "sore throats" at a college health service. They were diagnosed by two internists, independently, as suffering from serious infectious respiratory illness. The control subjects were 29 comparable male students, selected at random from the college directory, who were examined and found to be free from somatic, psychosomatic, or neurotic illnesses. Subjects were observed over the period of the month immediately following the diagnosis of illness for the URI subjects.

A standardized index of life change (LCI) was administered to each subject at the start of the study, presenting descriptions of a series of important pressures and conflicts, with instruction to the subject that he indicate which ones he had personally experienced during the past year. Measures of character style, coping mechanisms, and affect were also administered to each subject in a standard sequence. Two questionnaires and a projective technique were used to test two separate hypotheses regarding styles of maladaptation; the first reflected characteristics of passivity and compliance, and the second, traits of defiance and impetuousness. Unpleasant affect was predicted to be elevated in the URI group, as a consequence of the current experience of unresolved conflict.

Responses to the life change inventory indicated that significantly more disappointment, failure, and role crisis appeared in the lives of individuals who developed URI and sought medical help for them than in normals. This difference was significant at the 0.01 level.

The reaction pattern associated with

the URI group was one of defiance. No difference appeared between the groups with respect to submissiveness. The scores for each individual test and the total score for unpleasant affect and defiant patterns discriminated the 2 groups in the expected direction. To assess the consistency of the group findings, the median score was determined, and each subject's performance was judged as either above or below this level. Those subjects who scored at or above the median on the total score were expected to have had an URI. Twenty-three of the 29 URI subjects confirmed this prediction. Twenty-three of the 29 normals failed to satisfy this criterion. This distribution was discriminating at the 0.001 level of confidence (chi square = 17.66), with 79% of the subjects scoring in accordance with the theoretical expectation.

The results of this study are consistent with the assumption that the development of a serious URI and the seeking of medical aid for it is associated with unresolved distressing life change, maladaptive coping mechanisms, and unpleasant affect. Feelings of helplessness, failure, or social isolation are seen as most likely to antedate serious URI in male college students, and, in this light, illness may be seen as a temporary escape from unpleasant life circumstances. Prospective studies will be required to provide a more stringent test of these hypotheses.

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