

content which “demonstrated an unusual quality, such as a shift, an alteration, an about face, or a weird connotation according to customary standards or expectations” (p. 228). This method of dream analysis can serve as an alternative to the relatively more frequent practice of categorizing anomalies in dreams by process or content. The value of this method rests not only on the fact that it addresses specific aspects of the dreamer’s experience, but also on evidence from Rychlak showing significant relationships to such measures of personality as the Manifest Anxiety Scale (Taylor, 1953), the Minnesota Multiphasic Personality Inventory (Hathaway & McKinley, 1951), and the Personal Preference Schedule (Edwards, 1954). The Edwards Schedule scale measures a person’s tendency to favor flux (i.e. change) over stability. Of specific interest to the study of cancer patients is Rychlak’s (1963) finding that participants reporting unusual qualities associated with location scored high in the change scale of the Personal Preference Schedule. Location distortion refers to unusual characteristics associated with “where the dream is taking place,” (p. 228) as when a location suddenly shifts from a dance floor to a skating rink. Accordingly, patients experiencing either confusion in daily life, or adjustments contributing to personal growth and development, may have dreams containing more distortions in location.

The relationship between the life of the cancer patient and the other narrative categories of distortion, i.e. action, actors, moods, implements, described by Rychlak (1963) were also explored.

## Results

Results are presented below in two separate sections. First is a summary of the results obtained by treating the sample of patients obtained as a group. This is followed by the findings specific to each patient (i.e. the individual cases).

#### Participants Excluded from Analyses

Six of the original twenty-eight patients became unavailable for follow-up for medical reasons. Patients 14 and 21 were admitted to the hospital a week after their respective interviews and could not be contacted. Patient 20 withdrew due to her symptoms. Patients 15, 16, and 28 attributed an inability to recall dreams to medications which either enhanced or disturbed their sleep.

In addition, eight other patients were excluded from further analyses because they could not recall at least one dream over the period of at least one month. The list includes six patients who reported in the initial interview either that they had not recalled a dream in years or had never recalled a dream, i.e. patients 18, 19, 22, 23, 24, and 26. Patients 25 and 27 also did not produce a dream. An inspection of patient characteristics, i.e. sex, age, cancer type, severity, and year of diagnosis, failed to identify reliable differences between recallers and non-recallers.

#### Participants Retained for Analyses

Fourteen of twenty-eight patients (eight females and six males) provided at least one dream and were retained for analyses. The median age (as well as the range) for this subset of patients is identical with that reported above for the entire sample. The characteristics of patients retained for analyses are presented in Table 1.

## Group Summary

### Hypotheses

It was hypothesized that patients reporting higher levels of life changes would have dreams containing more anomalies than those patients reporting fewer life changes. A Pearson product-moment correlation was performed to assess the relationship between dream anomalies and (1) age, (2) the number of years since diagnosis (YSD), and (3) the number of bodily organs affected by the cancer. A Spearman rank-order correlation was performed to assess the relationship between dream anomalies and (1) the stage of cancer at initial diagnosis and (2) prognosis ranked across patients. Table 2 shows these relationships for total (process or content) anomalies (absolute number of process or content anomalies summed across patient dreams) and mean (process or content) anomalies (number of process or content anomalies per dream).

As shown in Table 2, the hypothesis which linked dream anomalies to life changes (i.e. operationalized as morbid indicators of disease) received little support from the correlations. The only variable clearly related to anomalies was age, which in and of itself is neither an indicator nor a measure of disease. The older the patient, the fewer the anomalies exhibited in his or her dreams, especially content anomalies. The relationship between mean process anomalies and number of affected organs was the only other reliable correlation. The greater the number of organs affected by cancer, the fewer the anomalies exhibited in the dreams.

<u>Table 1.</u> Characteristics of Patients Retained for Analysis.					
<u>Patient</u>	<u>Sex</u>	<u>Age</u>	<u>Cancer Type</u>	<u>Stage</u>	<u>Diagnosis</u>
01	M	51	lymphoma	III	1984
02	M	62	lung	IV	1997
03	F	58	breast	IV	1992
04	F	58	ovarian	I	1986
05	M	44	leukemia	II	1997
06	M	63	lymphoma	IV	1995
07	F	46	breast	IV	1993
08	M	60	leukemia	II	1995
09	F	45	lymphoma breast	III II	1989 1991
10	M	58	leukemia	I	1989
11	F	40	breast	II	1992
12	F	74	uterine	III	1997
13	F	63	breast	IV	1997
14	F	74	uterine	II	1992

Independent samples t-tests were performed to assess differences in anomalies for categories of disease status, i.e. whether the malignancy has increased, diminished, or remained stable. The dreams of patients whose cancer diminished exhibited reliably fewer mean anomalies ( $\underline{M} = 1.95$ ,  $\underline{SD} = 1.03$ ) than the dreams of patients whose cancer advanced or remained stable ( $\underline{M} = 4.15$ ,  $\underline{SD} = 2.98$ ),  $t(12) = 1.96$ ,  $p < .10$ . This was also the case for mean process anomalies in particular, of which the dreams of eight patients whose cancer diminished exhibited reliably fewer ( $\underline{M} = 1.24$ ,  $\underline{SD} = 0.90$ ) than the dreams of six patients whose cancer advanced or remained stable ( $\underline{M} = 3.08$ ,  $\underline{SD} = 2.65$ ),  $t(12) = 1.85$ ,  $p < .10$ . Anomalies, particularly process anomalies, served as an indicator of an undesirable disease status. This finding, when viewed in light of the reliably inverse relationship between number of affected organs and process anomalies (see Table 2) may indicate that process anomalies accompany the advancement of cancer rather than advanced cancer, i.e. that process anomalies are exhibited by patients whose disease is in the process of spreading from a point of origin to distant sites. If this were the case, then process anomalies may anticipate rather than reflect metastases.

Furthermore the dreams of three patients, i.e. patients 2, 5, and 13, who recently received the news that they had cancer for which the prognosis was poor exhibited reliably more process anomalies ( $\underline{M} = 10.33$ ,  $\underline{SD} = 4.16$ ) than the other eleven patients ( $\underline{M} = 3.55$ ,  $\underline{SD} = 4.68$ ),  $t(12) = 2.27$ ,  $p < .05$ . Table 3 exhibits the prognosis for each of the patients based on type and stage of cancer. These three patients produced these dreams within six months of having been diagnosed with a likely terminal illness, whereas the other two patients, i.e. patients 3 and 6, who received a comparable prognosis and whose dreams

Table 2. Correlations (N = 14) between Morbid Indicators and Dream Anomalies.					
	Age	YSD	Organs Affected	Stage	Ranked Prognosis
Total Anomalies	-0.56**	-0.22	-0.15	-0.12	-0.28
Mean Anomalies	-0.25	-0.32	-0.45	-0.33	-0.08
Total Process	-0.47*	-0.17	-0.20	-0.17	-0.24
Mean Process	-0.08	0.35	-0.50*	-0.20	-0.22
Total Content	-0.64**	-0.28	-0.06	0.21	-0.13
Mean Content	-0.52*	-0.29	0.03	0.16	0.07

\* p < .10.

\*\* p < .05.

contained fewer anomalies were diagnosed at least five years ago. Anomalous dreams (which violate empirical law) may reflect the initial shock of discovering that one has a terminal illness. An additional analysis revealed no differences in anomalies between the dreams of nine smokers and five non-smokers. In summary, anomalies were reliably associated with relative youth, disease advancement, and the recent diagnosis of a disease for which the prognosis is poor. (\*Physician indicated that the prognosis for these cases was worse than that suggested by national norms).

<u>Table 3. Prognosis.</u>	
<u>Patient</u>	<u>Prognosis (Based on National Statistics of Median Survival)</u>
1	75% survive 5 years
2	< 14% survive 5 years
3	10% survive 8 years
4	90% survive 5 years
5*	50% survive 4 years
6	< 50% survive 5 years
7	84% survive 5 years
8	60% achieve full remission
9	75% survive 5 years
10	50% survive 6 years
11	70% survive 8 years
12*	60% survive 5 years
13	10% survive 8 years
14	80% survive 5 years

I expected that the dreams of patients exhibiting attitudes of resistance to change would contain a greater number of content and process anomalies than the dreams of patients who did not exhibit this attitude. In order to address this hypothesis, patients were categorized on the basis of whether they affirmed or denied in the initial interview having to make adjustments or sacrifices as a result of their illness. For example, despite an advanced lung cancer, patient 2 answered nearly every adjustment-related question with a single, unqualified “no.” Conversely, patient 3 responded to the same questions with a resounding “yes,” followed by various complaints that she has suffered pain and disability and has had to relinquish her hobbies, her independence, and her self-respect. Overall, five patients denied adjustments and five patients acknowledged adjustments. Table 4 shows the results of independent-samples t tests performed to distinguish sacrifice-affirming patients from sacrifice-denying patients on the basis of anomalies.

The hypothesis was supported. The dreams of sacrifice-denying patients contained more anomalies than the dreams of sacrifice-affirming patients. Moreover, not one of the six sacrifice-denying patients reported a realistic dream, and only two of the eight sacrifice-affirming patients reported a fictitious dream. Clearly, the patients denying the effects of their illness experienced more anomalous dreams.

I expected that the dreams of sacrifice-denying patients would contain a greater number of hostile themes and death-related imagery than the dreams of sacrifice-affirming patients. Hostile themes were exhibited as expected in the dreams of sacrifice-denying patients; however, the death-related imagery was exhibited in the dreams of sacrifice-affirming patients. With respect to hostile themes, sacrifice-denying patients dreamed of

<u>Table 4. Differences in Anomalies between Patients Affirming (<math>n = 8</math>) and Patients Denying Sacrifice (<math>n = 6</math>).</u>			
<u>Anomalies</u>	<u>M</u>	<u>SD</u>	<u>t</u>
<u>Total Anomalies</u>			
Denying Patients	12.83	9.87	2.36*
Affirming Patients	3.00	3.12	
<u>Mean Anomalies</u>			
Denying Patients	4.75	2.22	3.67***
Affirming Patients	1.50	1.04	
<u>Total Process</u>			
Denying Patients	8.50	5.86	2.57**
Affirming Patients	2.38	2.97	
<u>Mean Process</u>			
Denying Patients	3.48	2.12	2.98**
Affirming Patients	0.93	0.93	
<u>Total Content</u>			
Denying Patients	4.33	4.37	2.07*
Affirming Patients	0.63	0.52	
<u>Mean Content</u>			
Denying Patients	1.27	0.99	2.52**
Affirming Patients	0.33	0.35	

\*  $p < .10$

\*\*  $p < .05$

\*\*\*  $p < .01$ .

NOTE: Unequal variances were assumed for differences between denying and affirming patients in total content anomalies ( $F = 28.46$ ,  $p < .05$ ) and total anomalies ( $F = 9.05$ ,  $p < .05$ ).

immediate threats to survival or well-being, including wild dogs (patient 5), primitive humanoids (patient 1), a neighborhood mugger (patient 2), a scientific experiment that culminated in world destruction (patient 5), and a coup attempt within a social group resulting in injury (patient 11). These patients in turn resorted to hostility to combat the threat of violence: patient 5 shot the wild dogs, patient 2 re-configured a garden tool in preparation for combat, patient 1 used at least six different weapons in staving off the onslaught of primitive humanoids, and patient 11 used a water hose to stave off the rival faction and injure a horse. Furthermore, these hostile situations frequently resulted in unintended consequences. Patient 11 was oblivious to the conflict escalation which culminated in her inadvertent injuring of a horse; patient 2 accepted a wager with a co-worker resulting in a wrestling match that ultimately destroyed heavy construction equipment; and patient 5 witnessed a film documenting the world destruction set in motion unwittingly by a scientific experiment. Each of these dreams contained an explicit reference to an observable act of hostility with the patient as an intended or potential victim.

Conversely, the references to hostility exhibited in the dreams of sacrifice-affirming patients were unobservable and did not target the patient directly. These include the attempt of a patient to question her granddaughter in an effort to learn the source of her bruises (patient 12) and an aimless wandering into the hospital room of another patient with an unidentified affliction (patient 12). Unlike the dreams of sacrifice-denying patients, these dreams reveal consequences independently of the acts with produced them, including the only references to death. These include the fear that a fatal accident may

befall an ex-husband (patient 9), discussion of a stranger's death among a patient's co-workers (patient 3), the joyous visitation of a patient's deceased father (patient 3), the joyous re-living of an event with a deceased husband (patient 14), and the assumed death of many Americans whose country was being overrun by an unseen Army of unknown origin (patient 13). Only one of these references to death/hostility (i.e. patient 13) represented a threat to the patient herself. No formal statistical analysis seems appropriate here since the number of cases is small and the pattern of results is clear.

The denial and affirmation of sacrifice seemed more consistent with personality variables than with medical fact or necessity. Additional analyses provided little medical justification for patient denial of sacrifices, with the following exceptions: sacrifice-denying patients exhibited a reliably lower level of low GGT ( $\underline{M} = 24.00$ ,  $\underline{SD} = 14.09$ ) than sacrifice-affirming patients ( $\underline{M} = 62.13$ ,  $\underline{SD} = 46.09$ ) whose GGT levels were abnormally high,  $t(10) = 2.15$ ,  $p < .10$ ; and sacrifice-denying patients exhibited a reliably higher level of low albumin ( $\underline{M} = 4.10$ ,  $\underline{SD} = 0.16$ ) than sacrifice-affirming patients ( $\underline{M} = 3.36$ ,  $\underline{SD} = 0.89$ ), whose albumin levels were abnormally low,  $t(9) = 2.14$ ,  $p < .10$ . These were the only reliable differences in blood chemistry between patients denying and affirming the effects of cancer.

However, the wide-ranging effects of cancer include consequences other than those which can be measured in physical symptoms. Sacrifice-denying patients exhibited a greater variance in the severity of social/family complaints, ( $\underline{M}_{SD} = 1.16$ ) than sacrifice-affirming patients ( $\underline{M}_{SD} = 0.53$ ),  $t(12) = 2.37$ ,  $p < .05$ . Apparently, sacrifice-denying patients were able to affirm certain aspects of social/family well-being, e.g. "I get

emotional support from my family,” while denying others, e.g. “I feel close to my partner” suggesting problems with specific individuals rather than with support in general.

Specifically, sacrifice-denying patients indicated that their family’s lack of acceptance for their illness was reliably greater ( $\underline{M} = 2.17$ ,  $\underline{SD} = 1.33$ ) than that of sacrifice-affirming patients ( $\underline{M} = 0.63$ ,  $\underline{SD} = 0.92$ ),  $t(12) = 2.58$ ,  $p < .05$ . Clearly, those patients who refused to concede that cancer has changed their lives were, nevertheless, willing to admit that a member of their family had trouble accepting their illness. The sacrifice-denying patients may be projecting the tension emanating from their cancer on those closest to them.

However, it is also possible that patients attempting to deny their cancer are sensitive to (and stressed by) the concern of people close to them, and they may ignore this concern in order to maintain their strategy of denial. This may create a tension between patients and a family member who does not understand the importance of denial to persons afflicted by the disease. In effect, patients may assume incorrectly that their families are more comfortable with an apparently silent or invisible cancer.

Anomalies were not the only aspect of dream experience which discriminated between patients affirming and patients denying the effects of cancer. Sacrifice-denying patients also dreamed of a reliably greater number of fictional characters ( $\underline{M} = 8.82$ ,  $\underline{SD} = 7.36$ ) than sacrifice-affirming patients ( $\underline{M} = 1.13$ ,  $\underline{SD} = 2.60$ ),  $t(12) = 2.45$ ,  $p < .05$ , as well as a reliably greater number of distorted settings ( $\underline{M} = 0.38$ ,  $\underline{SD} = 0.42$ ) than sacrifice-affirming patients, none of whom exhibited a single distorted setting.

These findings showing that dream anomalies are associated with sacrifice denial were supported by an inspection of the individual cases. While six of the eight sacrifice

affirming patients reported realistic dreams, not one of the six sacrifice-denying patients reported a realistic dream, only fictitious characters and settings falsely identified within the dream as people and places belonging to waking experience. This pattern could be explained by drawing an analogy between dreams and films. Audiences suspend their disbelief in the events occurring on screen in order to submit to the effects of the film, namely, to identify with characters and experience their feelings. This conscious process may mimic an unconscious process occurring within each individual when he or she withdraws awareness from an external reality and replaces it with a dream. The practice of falsely identifying fictitious characters and settings as real persons and places may be a form of defensive dreaming by sacrifice-denying patients. Their dreams may serve a reinforcing function, whereby defensive denial of cancer in waking life is supported by dreams which deny or distort other forms of waking life experience.

Furthermore, every hostile dream theme, i.e. every immediate threat to a patient's survival or well-being, was found in dreams of sacrifice-denying patients. The threats included wild dogs, primitive humanoids, a neighborhood mugger, poisonous snakes, and a scientific experiment that culminated in world destruction. The dreams of patients who deny the effects of cancer may lead them to identify with threatened characters. The only sacrifice-denying patient (i.e. patient 10) whose dream did not include a hostile theme was, also the only patient, whose denial was an appropriate reaction to the medical facts of his illness, i.e. in the eight years of his cancer, patient 10 had always exhibited near-normal physical exams. By contrast, the dreams of patients acknowledging the effects of their cancer were more realistic and less hostile. References to standard routines rather than

fictitious events predominated across the dreams of these patients. In general, therefore, one of the more consistent and potentially important findings of this study is that sacrifice-denying patients exhibited dreams with more unusual qualities than those of sacrifice-affirming patients.

I had expected that patients who exert control over their waking lives, i.e. report self-initiated changes that enhance their adjustment or growth, would have dreams with fewer process anomalies than patients reporting crises-induced experiences such as medical and social problems. To put this expectation to the test, patients were categorized according to these two types of changes as described during the initial interview. Five patients, i.e. patients 3, 7, 8, 13, and 14, complained about having to endure the loss of certain freedoms or resources including hobbies and the ability to perform routine tasks. These patients will be referred to as crisis-induced reactors. Five patients, i.e. patients 1, 4, 6, 9, and 11, reported considerable initiative in altering their lifestyle following diagnosis, mentioning such things as joining a motorcycle riding group, counseling recently diagnosed cancer patients, sharing a friend's family, and giving away all one's material possessions. These patients will be referred to as self-initiated changers. Four patients, i.e. patients 2, 5, 10, and 12, denied any change at all and will be characterized as nonreactors.

Table 5 displays the means and standard deviations for self-initiated changers, crisis-induced reactors, and nonreactors. Independent samples t-tests were performed to assess differences in anomalies among these three change categories. The expectation was not supported. The dreams of self-initiated changers on average contained slightly more

<u>Table 5. Differences in Anomalies among Self-Initiated Changers (<math>n = 5</math>), Crisis-Induced Reactors (<math>n = 5</math>), and Nonreactors (<math>n = 4</math>).</u>		
<u>Anomalies</u>	<u>M</u>	<u>SD</u>
<u>Total Anomalies</u>		
Self-Initiated Changers	7.80	11.17
Crisis-Induced Reactors	3.60	3.65
Nonreactors	11.00	8.37
<u>Mean Anomalies</u>		
Self-Initiated Changers	3.08	3.20
Crisis-Induced Reactors	1.70	0.67
Nonreactors	4.15	2.00
<u>Total Process</u>		
Self-Initiated Changers	5.20	6.69
Crisis-Induced Reactors	2.80	3.56
Nonreactors	7.50	5.26
<u>Mean Process</u>		
Self-Initiated Changers	2.06	2.92
Crisis-Induced Reactors	1.19	0.95
Nonreactors	3.03	1.56
<u>Total Content</u>		
Self-Initiated Changers	2.60	4.72
Crisis-Induced Reactors	0.80	0.45
Nonreactors	3.50	3.51
<u>Mean Content</u>		
Self-Initiated Changers	0.62	0.69
Crisis-Induced Reactors	0.52	0.46
Nonreactors	1.13	1.32

process anomalies than the dreams of crisis-induced reactors.

Furthermore, crisis-induced reactors exhibited reliably fewer total anomalies ( $M = 1.70$ ,  $SD = 0.67$ ) than nonreactors and self-initiated changers combined ( $M = 3.56$ ,  $SD = 2.64$ ),  $t(9.71) = 2.00$ ,  $p < .10$ . In addition, crisis-induced reactors exhibited reliably fewer mean process anomalies ( $M = 1.19$ ,  $SD = 0.95$ ) than nonreactors ( $M = 3.03$ ,  $SD = 1.56$ ),  $t(7) = 2.19$ ,  $p < .10$ .

In summary, patients resistant to change experienced less realistic dreams containing more anomalies and hostile themes than patients who were not resistant to change. Specifically, crisis-induced reactors, who readily register complaints about the overwhelming effects of their cancer, reported the fewest process and content anomalies, whereas nonreactors reported the most process and content anomalies (see Table 5).

#### Dream Content Relevant to the General Effects of Cancer

I speculated that while they may not be literally expressed in dreams, cancer-related themes may be addressed indirectly or symbolically. Analysis of the dreams and follow-up interviews obtained from the thirteen patients revealed only three literal references to the theme of cancer. The three literal expressions of cancer-related themes included patient 4, who had a nightmare in which she realistically relived the experience of having been fired from her job for medical absences; patient 9, who dreamed of her current work problems, which she regrets not being able to flee as a result of her dependence on the company medical insurance; and patient 6, who dreamed that his routinely viewed television programs (on which this normally active person became dependent following the loss of certain capacities) were pre-empted by professional football.

## Possible Symbolic Ties

Eight patients experienced dreams which may have symbolically expressed cancer-related themes. A scientific experiment which accidentally destroyed the planet may have referred to the potential side effects of treatment in patient 4. An armed battle against an army of primitive humanoids contained elements in the settings and characters which referred to patient 1's waking obsession with extinct creatures and with his own suicidal intentions. The playful exchange between patient 2 and a co-worker in which they threw silica gel at each other may have referred to a causal link between his former employment and his cancer, which he denies. The intention to move permanently to the Amish country in one dream may refer to the reported need of patient 7 for a way to sustain a lack of normal amenities and live independently outside society. A re-experience of a family event 26 years ago including her deceased first husband, who died of cancer, may refer to the most recent time at which patient 14 had not yet experienced loss. Patient 11's discovery of a collection of wild and sexy bras stored in their original plastic in one of her mother's drawers as her mother helped her prepare for a date may refer to a way in which her breast cancer altered her self-perception. Visits with her deceased father and by friends and co-workers may refer to the fact that patient 3, recovering from advanced cancer, may soon rejoin her previous life. Finally, a successful circumnavigation of a road surrounding a fenced-in wooded area containing poisonous snakes may have referred to the medical status of patient 8 and his coping strategy of disregarding all natural and spontaneous inclinations in himself. Patients 1 and 8 ventured comments about the symbolic relationships between their dreams and cancer without having been questioned on the

matter.

This interviewer was surprised by the extent to which the dreams seemed to fit the clinical material of the dreamer: the medical history and the initial and follow-up interviews. The clinical material used ultimately as the basis for determining a dream's symbolic expression of a cancer-related theme is elaborated in the individual case vignettes described later (p. 86 - 167). In general, however, the hypothesis that cancer-related themes may be expressed symbolically is supported by the foregoing analysis.

#### Dreams & Quality of Life

I speculated that the dreams of patients experiencing relatively greater discomfort (indicated by patient responses to the Quality of Life Inventory) would contain more anomalies than those of patients experiencing relatively less discomfort. Individual items in the Quality of Life Inventory refer to symptoms, e.g. "I have nausea," and respondents indicate the extent to which the symptoms apply to them. The inventory presents the lists of symptoms in five different sections or categories, such that responses to individual symptoms can be averaged to provide an overall measure of the extent to which a patient suffers from physical symptoms, emotional symptoms, social/family concerns, functional disabilities, and additional (miscellaneous) symptoms. Thus, for each patient, individual scores, e.g. "I have nausea," and mean scores, e.g. "physical symptoms" are available. In order to address the hypothesis linking discomfort with anomalies, Pearson product-moment correlations between dream anomalies and (a) responses to individual symptoms, and (b) mean responses to symptom categories were compiled.

Reliable correlations between anomalies and symptoms, and symptom categories, are

<u>Table 6.</u> Correlations (N = 14) between Anomalies and Reported Symptoms/Complaints.						
	<u>Mean Anomaly</u>	<u>Mean Process</u>	<u>Mean Content</u>	<u>Total Anomaly</u>	<u>Total Process</u>	<u>Total Content</u>
<u>Physical Symptoms</u>						
Lack of energy.	-0.19	0.09	-0.31	-0.26	-0.20	-0.33
Have nausea.	0.44	0.47*	-0.01	0.08	0.15	-0.05
Trouble meeting the needs of my family.	0.34	0.45	-0.01	-0.13	-0.05	-0.25
Have pain.	0.42	0.38	0.21	0.49*	0.54**	0.37
Treatment side effects.	-0.11	0.14	-0.36	-0.13	-0.15	-0.31
Feel sick.	0.56**	0.65**	0.07	0.16	0.24	0.01
Forced to spend time in bed.	0.02	-0.12	-0.08	-0.08	-0.02	-0.16
Mean.	0.38	0.50*	-0.11	0.02	0.15	-0.19
<u>Social/Family Concerns</u>						
Distance from friends.	0.28	0.32	0.09	0.03	0.03	0.03
Lack of emotional support from family.	0.53*	0.71**	-0.14	-0.19	-0.11	-0.30
Lack of support from friends/neighbors.	0.34	0.48*	-0.10	-0.19	-0.14	-0.26
Lack of family acceptance of illness.	0.67**	0.74**	0.24	0.41	0.46*	0.28

	<u>Mean Anomaly</u>	<u>Mean Process</u>	<u>Mean Content</u>	<u>Total Anomaly</u>	<u>Total Process</u>	<u>Total Content</u>
Family communication about illness is poor.	0.37	0.44	0.07	-0.15	-0.11	-0.19
Feel distant from partner.	0.67**	0.85**	-0.13	-0.06	0.05	-0.23
Mean.	0.59**	0.73**	0.02	0.01	0.08	-0.09
<u>Emotional Problems.</u>						
Feel sad.	0.25	0.46*	0.01	0.08	0.15	-0.05
Lack of pride in coping.	0.45	0.58**	0.00	0.25	0.36	0.04
Losing hope in fight against illness.	0.25	0.42	-0.25	-0.17	-0.10	-0.27
Feel nervous.	0.26	0.44	-0.17	-0.01	0.06	-0.11
Worry about dying.	0.46*	0.57**	0.02	0.32	0.40	0.15
Worry condition will worsen.	0.14	0.25	-0.05	0.08	0.10	0.03
Mean.	0.34	0.52*	-0.13	0.09	0.17	-0.05
<u>Functional Disability.</u>						
Unable to work.	0.12	0.26	-0.18	-0.30	-0.20	-0.44
Work is unfulfilling.	-0.03	0.09	-0.02	-0.08	-0.06	-0.11
Unable to enjoy life.	0.53*	0.70**	-0.09	0.15	0.25	-0.03
Have not accepted illness.	0.60**	0.72**	0.06	0.48*	0.57**	0.29

	<u>Mean Anomaly</u>	<u>Mean Process</u>	<u>Mean Content</u>	<u>Total Anomaly</u>	<u>Total Process</u>	<u>Total Content</u>
Unable to sleep well.	0.17	0.39	-0.27	0.19	0.27	0.04
Unable to enjoy things I do for fun.	0.13	0.37	-0.33	-0.12	-0.02	-0.27
Discontent with quality of life now.	-0.04	0.17	-0.28	-0.04	0.03	-0.14
Mean.	0.27	0.51*	-0.22	0.04	0.15	-0.14
<u>Additional Concerns.</u>						
Shortness of breath.	-0.14	0.10	-0.43	-0.31	-0.20	-0.46*
Losing weight.	0.03	-0.15	-0.09	0.04	0.09	-0.04
Unclear thinking.	0.47*	0.70**	-0.23	0.11	0.23	-0.09
Coughing.	0.32	0.41	0.03	0.51*	0.53*	0.43
Bothered by hair loss.	-0.35	-0.35	-0.41	-0.41	-0.37	-0.42
Poor appetite.	0.72**	0.71**	0.13	0.21	0.34	-0.02
Tightness in my chest.	0.25	0.22	-0.39	-0.17	-0.05	-0.34
Difficulty breathing.	0.35	0.47*	-0.32	-0.22	-0.08	-0.42
Mean.	0.40	0.48*	-0.37	-0.02	0.14	-0.27

\*  $p < .10$ .

\*\*  $p < .05$ .

shown in Table 6. The relationship between symptoms and dream anomalies are also described separately for each patient in the individual results section (p. 86 - 167).

### Individual Symptoms

Three of the seven physical symptoms were related to anomalies. Mean process anomalies was directly related to nausea and to a feeling of sickness, and total process anomalies was directly related to pain.

Four of the seven social/family complaints were directly related to mean process anomalies, including a lack of emotional support from family, a lack of support from friends/neighbors, a lack of family acceptance of patient illness, and estrangement from partner.

Three of the six emotional problems were directly related to mean process anomalies, including sadness, death anxiety, and a lack of pride in coping.

Two of the seven functional disabilities were directly related to mean process anomalies, including an inability to enjoy life and a lack of personal acceptance for illness. In addition, the lack of personal acceptance of illness was also directly related to the total number of content anomalies.

Five of the nine additional concerns were related to anomalies. Unclear thinking, poor appetite, and difficulty breathing were directly related to mean process anomalies, and coughing was directly related to total process anomalies. Conversely, shortness of breath was inversely related to total content anomalies.

### Symptom Categories

The mean for each category of symptoms or complaints was directly related to mean

process anomalies. However, this relationship was clearly more reliable for social/family complaints ( $r = 0.73$ ,  $p < .01$ ) than for emotional problems ( $r = 0.52$ ,  $p < .10$ ), functional disabilities ( $r = 0.51$ ,  $p < .10$ ), physical symptoms ( $r = 0.50$ ,  $p < .10$ ), and additional concerns ( $r = 0.48$ ,  $p < .10$ ).

Pearson product-moment correlations were also performed to assess the relationship between patient symptoms or complaints and distortions. Though fewer patient symptoms or complaints correlated reliably with distortions than with anomalies, a clear pattern was evidenced by the analysis. Symptoms or complaints were directly related with a particular class of distortion, i.e. distortions of actor. This is evidenced by Table 7, which provides the pattern of correlations for those symptoms or complaints reliably related to at least one type of distortion. Location distortion, directly related to coughing, was the only type of distortion other than actor distortion to correlate reliably with a symptom or complaint.

Patients who exhibited anomalous dreams also reported severe symptoms or complaints.

#### Additional Analyses

A) Fictional Versus Realistic Dreaming. The association between responses to the Quality of Life Inventory and fictional dreaming was also explored. An inspection of patient dreams identified three different types, including dreams in which, (1) the patient's waking experience was realistically duplicated (i.e. realistic dreams), (2) the patient's waking experience was not represented (i.e. fictional dreams), and (3) the patient's waking experience was distorted (i.e. distorted dreams). Table 8 provides the results of independent groups t-tests comparing the symptom severity of patients providing fictional

<u>Table 7. Correlations (N = 14) between Distortions and Symptoms/Complaints.</u>				
	<u>Actor Distortion</u>	<u>Action Distortion</u>	<u>Location Distortion</u>	<u>Implement Distortion</u>
<u>Physical Symptoms</u>				
Have pain.	0.72**	0.24	0.40	0.42
Feel sick.	0.64**	0.00	0.03	0.00
Mean.	0.53*	-0.13	-0.12	-0.08
<u>Emotional Problems.</u>				
Lack of pride in coping.	0.67**	-0.04	0.16	0.18
Worry about dying.	0.53*	0.23	0.27	0.19
Mean.	0.48*	-0.05	0.05	-0.02
<u>Functional Disability.</u>				
Unable to enjoy life.	0.70**	-0.09	0.03	0.01
Have not accepted illness.	0.86**	0.16	0.38	0.37
Mean.	0.59*	-0.23	0.01	-0.01
<u>Additional Concerns.</u>				
Unclear thinking.	0.52*	-0.13	0.10	0.01
Coughing.	0.28	0.44	0.67**	0.41
Poor appetite.	0.54**	0.09	-0.09	0.08

\* p < .10

\*\* p < .05

NOTE: The items were five-point scales, ranging from 0 (indicating no symptom or complaint) to 4 (indicating severe symptom or complaint).

<u>Table 8. Differences in Symptom/Complaint Severity among Patients Reporting Fictitious, Distorted, and Realistic Dreams.</u>			
<u>Symptom/Complaint</u>	<u>M</u>	<u>SD</u>	<u>t(12)</u>
<u>Have pain.</u> Fictitious/Distorted Dreamers Realistic Dreamers	1.22 0.22	1.09 0.45	2.46**
<u>Lack of family acceptance of illness.</u> Fictitious/Distorted Dreamers Realistic Dreamers	1.78 0.40	1.30 0.89	2.09*
<u>Treatment side effects.</u> Fictitious Dreamers Realistic/Distorted Dreamers	1.80 0.78	0.45 0.67	3.04***
<u>Inability to work.</u> Fictitious Dreamers Realistic/Distorted Dreamers	2.80 1.11	1.10 0.93	3.07***

\*  $p < .10$ .

\*\*  $p < .05$ .

\*\*\*  $p < .01$ .

dreams with patients providing realistic or distorted dreams.

These data show that patients with relatively higher estimations of their pain and lack produced fictitious or distorted dreams, and patients with higher estimations of their treatment side effects and inability to work produced realistic or distorted dreams.

Patient 8 dreamed indifferently of his circumnavigation -- without incident -- of a less pain and better family acceptance for their illness were more likely to report realistic dreams. Similarly, patients with relatively higher estimations of their treatment side effects and inability to work were more likely to report fictitious dreams, whereas patients with relatively lower estimations of their treatment side effects and inability to work were more likely to report realistic or distorted dreams.

B). Distance of Past Representations. Patient dreams included settings, activities, and people from their distant past, including former places of employment, former co-workers, a deceased father, a deceased husband, an ex-husband, an ex-girlfriend, a childhood farm, a previous vacation, and a primitive humanoid. The variable measured here was length of time in years since the event or activity apparently occurred. Pearson product-moment correlations were performed on the relationship between symptom or complaint severity and two distinct measures of past representations: (1) general past and (2) personal past, in which references that predate the life of the patient, i.e. snakes and primitive humanoids, were not defined as past. Patient 12 was excluded from analyses because her dreams contained no time indicators, and patients 1 and 8 were excluded from the analysis of relationships involving the personal past. Table 9 exhibits reliable correlations between symptoms and past representations in dreams.

<u>Table 9. Correlations between Distance of Past Representations and Symptom/Complaint Severity.</u>		
<u>Symptom/Complaint</u>	<u>Personal Past</u>	<u>General Past</u>
Lack of energy.	-0.62**	-0.44
Work is unfulfilling.	-0.71**	0.05
Tightness in chest.	0.64**	0.41
Losing weight.	0.59*	0.20

\*  $p < .10$ .

\*\*  $p < .05$ .

NOTE: Higher positive correlations signify a more severe symptom when the dream reaches further into the patient past.

As depicted in Table 9, five symptoms/complaints reliably correlated with distance of personal past representations, but no symptoms/complaints reliably correlated with distance of general past representations. References to the personal past, however, were less distant among patients reporting a lack of energy and unfulfilling work. This is not surprising given that references to former employment in the dreams were recent in comparison with the multitude of references to previous marriages, high school experiences, or childhood events. Conversely, references to the past were more distant among patients mentioning weight loss and tightness in the chest. Weight loss and chest tightness may seem fortuitous for patients who diet and exercise, but in the context of this sample, they are symptomatic of the adverse effects of treatment or disease. Table 9 does not display the reliably positive correlation between distance of personal past representations and mean additional concerns, ( $r = 0.57$ ,  $p < .10$ ), the category of which weight loss and chest tightness are members.

In addition to the results shown on Table 9, there were also (1) the reliable correlation between distance of personal past representations and patient estimates of the importance of physical symptoms to quality of life ( $r = 0.65$ ,  $p < .05$ ); and, (2) the reliable correlations between distance of general past representations and the patient estimations of the importance of additional concerns ( $r = 0.63$ ,  $p < .05$ ) and emotional problems ( $r = 0.53$ ,  $p < .10$ ) to quality of life.

C). Blood Chemistry. Physicians rely on periodic analyses of blood chemistry for an objective assessment of disease status. For example, abnormally high levels of bilirubin, a bile pigment manufactured by red blood cells and transported to the liver, frequently

signify liver metastases. An analysis of the relationships between dream and blood characteristics may advance understanding of the mind-body relationship, whether the relationship between the objective measures of blood chemistry validate or contest the relationship between dreams and subjectively reported symptoms. The blood chemistry summaries of patients over the past year were examined, and Pearson-product moment correlations were performed on the relationship between dream anomalies and (1) the highest quantity of each substance over the past year, (2) the lowest quantity of each substance over the past year, (3) the difference between the highest and lowest quantities, and (4) the quantity of each substance most recent at the time of the dream. Since the number of blood variables reliably correlating with dream anomalies exceeded the number that could be displayed in a table, the tables do not differentiate between high, low, difference, and recent subcategory of a variable, i.e. these subcategories are discussed in the text. Table 10 depicts reliable correlations between blood components and anomalies.

The relationships between process anomalies and blood characteristics presents a compelling pattern of contradictions and consistencies. Three vital agents in the blood, i.e. red cells, white cells, and hemoglobin, were directly related to mean process anomalies. Red cells and specifically hemoglobin carry oxygen from the lungs to the tissues. However, mean process anomalies were also directly related to difficulty breathing (see table 6). Furthermore, mean process anomalies were directly related to creatinine and CPK, two substances produced by the muscles during their anaerobic (i.e. oxygen-lacking) phase of contraction, i.e. during short but vigorous bursts of muscular

<u>Table 10. Correlations between Blood Components and Anomalies.</u>						
<u>Blood Characteristic</u>	<u>Mean Anomalies</u>	<u>Mean Process</u>	<u>Mean Content</u>	<u>Total Anomalies</u>	<u>Total Process</u>	<u>Total Content</u>
<u>Blood serum protein:</u>						
High	-0.03	-0.25	0.60**	0.10	-0.04	0.34
Low	0.41	0.31	0.54*	0.28	0.25	0.27
Difference	-0.55*	-0.63**	-0.17	-0.27	-0.36	-0.05
<u>Glucose:</u>						
High	0.40	0.57*	-0.27	0.07	0.28	-0.36
Low	0.62**	0.80**	-0.09	0.09	0.27	-0.28
Recent	0.54*	0.70*	-0.23	-0.02	0.18	-0.39
<u>CPK:</u>						
High	0.62*	0.41	0.81**	0.36	0.28	0.47
Recent	0.62*	0.70*	0.06	0.16	0.28	-0.06
Difference	0.61	0.40	0.89**	0.36	0.24	0.52
<u>Creatinine:</u>						
High	0.50	0.57*	-0.12	0.42	0.54*	0.12
Low	0.58*	0.60**	-0.02	0.47	0.57*	0.20
Recent	0.73**	0.80**	0.07	0.47*	0.56*	0.22
<u>White blood count:</u>						
High	0.14	0.21	-0.03	0.43	0.50*	0.28
Recent	0.29	0.47*	-0.28	0.03	0.14	-0.14
Difference	0.09	0.12	0.00	0.46	0.51*	0.32
<u>Red blood count:</u>						
High	0.34	0.54**	-0.08	0.03	0.12	-0.11
Low	0.29	0.54**	-0.27	-0.01	0.08	-0.15
Recent	0.37	0.59**	-0.19	-0.05	0.04	-0.18
<u>Hemoglobin:</u>						
Low	0.31	0.55**	-0.22	0.15	0.23	0.01
Recent	0.39	0.61**	-0.22	0.09	0.18	-0.07
<u>Difference between systole and diastole:</u>						
High	-0.04	0.06	-0.30	-0.38	-0.30	-0.47*
Recent	0.01	0.25	-0.56**	-0.24	-0.06	-0.49*
<u>LDH:</u>						
Recent	0.12	-0.08	0.52*	-0.01	-0.14	0.23
Difference	0.37	0.06	0.82**	0.24	0.08	0.52*

<u>Table 10.</u> Correlations between Blood Components and Anomalies.						
<u>Blood Characteristic</u>	<u>Mean Anomalies</u>	<u>Mean Process</u>	<u>Mean Content</u>	<u>Total Anomalies</u>	<u>Total Process</u>	<u>Total Content</u>
<u>Alkaline phosphatase:</u> Low	0.21	0.08	0.53*	0.22	0.15	0.33
<u>Blood urea nitrogen:</u> Recent	0.39	0.37	0.32	0.58*	0.56*	0.52
<u>Cholesterol:</u> Recent	-0.03	-0.13	-0.27	-0.54*	-0.49	-0.54*
<u>Systolic pressure:</u> Recent	-0.27	0.00	-0.57**	-0.45	-0.36	-0.55**
<u>Platelets:</u> Difference	-0.10	-0.24	0.14	-0.44	-0.51*	-0.29

\*  $p < .10$ .

\*\*  $p < .05$ .

activity.

Creatinine and CPK are enzymes present in the skeletal and cardiac muscle and in the brain as catalysts for the production of energy (ATP), and are excreted by the kidney. For this reason, abnormally high creatinine and CPK levels (as well as levels of blood urea nitrogen to which total process anomalies were directly related) may indicate myocardial infarction and renal metastases for the heart and cancer specialists respectively. Four patients whose dreams averaged less than one process anomaly exhibited a reliably and abnormally lower creatinine level ( $\underline{M} = 0.65$ ,  $\underline{SD} = 0.13$ ) than seven patients whose dreams averaged at least one process anomaly ( $\underline{M} = 1.03$ ,  $\underline{SD} = 0.14$ ),  $t(9) = 4.47$ ,  $p < .005$ . Coincidentally, mean process anomalies were also directly related to the most important carbohydrate in body metabolism, i.e. glucose, used by the tissues when combined with phosphorous by ATP.

Total process anomalies were directly related to high white cells ( $r = .50$ ). Thus, total process anomalies accompanied the largest levels of white cells among patients over the past year. Moreover, the reliably positive correlation between total process anomalies and the difference between the highest and lowest white cell levels over the year ( $r = .51$ ) indicated that total process anomalies not only accompany fluctuations, but increases in white cell levels. In fact, an independent samples t test revealed that the lowest white cell levels of ten patients who averaged one or more process anomalies per dream ( $\underline{M} = 6.87$ ,  $\underline{SD} = 8.46$ ) were within the normal medical range (i.e. 5-10) and reliably greater than the abnormally low white cell levels of four patients who averaged less than one process anomaly per dream ( $\underline{M} = 1.90$ ,  $\underline{SD} = 0.89$ ),  $t(9.48) = 1.83$ ,  $p < .10$ . Apparently, dream

experiences approximated lawful waking experiences when the body's capacity to combat disease was reduced below an acceptable medical threshold.

### Creatine Metabolism

A review of relevant terms in Taber's Cyclopedic Medical Dictionary (Thomas, 1993) indicated a link between the blood components reliably correlated with process anomalies.

The correlations seem to embrace energy production in general and indicate a link between process anomalies and the life process itself. This interpretation is based on the special relationship between creatine and adenosine triphosphate (ATP). Briefly, creatine phosphate and ATP are on opposite ends of a chemical spectrum. ATP releases energy and creatine phosphate acquires it. Manufactured primarily in the liver, creatine is transported in the blood and absorbed by muscle cells, where it is converted to creatine phosphate and stored in a cell as phosphocreatine until it is needed to produce chemical energy, or ATP. ATP is a molecule made of three phosphates, a base, and a sugar. ATP releases energy for a cellular reaction when it loses its third phosphate and becomes ADP. As an enzyme, Creatine phosphokinase (CPK) catalyzes this reaction, leaking into the bloodstream when there is injury or stress to the brain, the heart, or skeletal muscle. ADP will subsequently re-acquire a phosphate in an ADP-ATP cycle akin to a self-charging battery. The phosphate may be produced through anaerobic metabolism of glucose (i.e. blood sugar) at a time when the muscles have exhausted their oxygen supply. This process is crucial to all cells with a high energy turnover -- i.e., nerve cells, skeletal and heart muscle. This creatine metabolism, the end product of which -- creatinine -- is removed from the blood in the urine via the kidneys. An increase in the metabolic rate can

be caused by excessive functional activity of the thyroid gland (i.e. hyperthyroidism), which is indicated on by a high level of glucose. The excess thyroid hormone speeds up most chemical reactions in the body, causing widespread mental and physical changes.

As no direct line of causation can be observed between mind and body, the mind-body relationship is gleaned from correlations and analogies. One such analogy is the apparent synonymous-ness which process anomalies, i.e. the breakdown in the fabric of experience in dreams, are associated with the production of chemical energy, i.e. the breakdown of more complex molecules into simpler parts. When energy production becomes urgent with depletion, or when it runs amuck in hyperthyroidism, the fabric of experience breaks down in dreams with substantial frequency. When the life process is threatened, the fitful correction needed to provide what is missing is a burst -- an excess -- a moment where the essence or source of the life process is intensely exaggerated. This essence or source is described as "energy," a metaphor used by students of both the mind and body to understand the functional activity of their subject matter. It seems fitting that such a hyper-energetic or compensatory process should be observed in patients whose disease is a rampant and destructive proliferation of the basic unit of their own constitution, i.e. the cell. In cancer, death seems to be the result of excessive life.

Support for this interpretation is predicated on the direct relationship between process anomalies and the extent to which patients reported difficulty breathing ( $r = .47$ ,  $p < .10$ ). An oxygen deficit precipitates an increase in red blood cells and hemoglobin. Moreover, creatine is produced during the *anaerobic* phase of muscle contraction (i.e., without oxygen). Red blood cells and hemoglobin replenish ATP and phosphocreatinase.

Notwithstanding these attempts to parse the life process into its chemical constituents,

the significance of the blood chemistry findings can be summed up conservatively as a co-variation of process anomalies with certain chemicals in the blood. It is uncertain whether this means that process anomalies are diagnostic of physiological hyperactivity, systemic oxygen deficiency, or -- given their co-variation with white cells -- the disease at the root of these aberrant state changes.

A similar but distinguishable connection exists among the blood components reliably correlated with mean content anomalies. CPK, LDH, and alkaline phosphatase are all elevated in diseases of the bone, lung, or pancreas, where there is substantial skeletal or muscular tissue damage. These are complex proteins required for tissue repair, which may explain the reliable correlation between content anomalies and total blood serum protein. Whereas mean process anomalies may be indicative of normal or high levels of red and white cells, mean content anomalies may accompany damage to red or white cells, as suggested by the relationship between mean content anomalies and the *difference* between the year's high and low levels of lactic dehydrogenase (LDH). Abnormal increases in LDH accompany active lymphomas as well as blood malignancies.

Content anomalies were inversely related to recent systolic blood pressure and to the difference between recent systolic and recent diastolic pressure. Apparently, content anomalies accompany relatively higher levels of blood pressure during the contraction of the heart. Total content anomalies were also inversely related to cholesterol level and were directly related to serum protein. In persons suffering from cancer and other wasting or debilitating diseases, low blood pressure is frequently a precursor to death.

Since both dreams and blood chemistry are objective, natural phenomena, it may be possible that anxieties provoking dream anomalies are also linked to changes in blood

chemistry. Stress has been shown to alter the number of immune system cells, i.e. phagocytes, T cells, and B cells, in the blood (McKinnon, Weisse, Reynolds, Bowles, & Baum, 1989). Stress and emotion have also been linked to increases in blood pressure (Bishop, 1994).

Given the difference in the meaning of fictitious and distorted dreaming (see pages 38-40), the subtle distinction between process and content anomalies with respect to blood chemistry invites speculation that in persons afflicted with cancer -- to use the analogy -- while fiction is benign, distortion is malignant.

Differences in blood characteristics among realistic, distorted, and fictitious dreamers were also examined. The blood characteristics which distinguished between these categories were similar to those blood characteristics which were reliably related to content anomalies. Five fictitious dreamers exhibited a reliably greater difference between recent systolic and recent diastolic pressure ( $\underline{M} = 54.40$ ,  $\underline{SD} = 41.78$ ) than nine distorted or realistic dreamers ( $\underline{M} = 41.78$ ,  $\underline{SD} = 10.65$ ),  $t(12) = 2.40$ ,  $p < .05$ . Similarly, the five fictitious dreamers exhibited a reliably greater difference between the year's high and low levels of diastolic pressure ( $\underline{M} = 24.80$ ,  $\underline{SD} = 6.57$ ) than the nine distorted or realistic dreamers ( $\underline{M} = 16.89$ ,  $\underline{SD} = 7.36$ ),  $t(12) = 1.97$ ,  $p < .10$ . This was consistent with the fact fictitious dreamers also exhibited reliably greater levels of high diastolic pressure ( $\underline{M} = 92.80$ ,  $\underline{SD} = 12.21$ ) than distorted or realistic dreamers ( $\underline{M} = 83.33$ ,  $\underline{SD} = 4.58$ ),  $t(12) = 2.13$ ,  $p < .10$ . Thus, fictitious dreaming accompanied fluctuations and perhaps increases in resting heart blood pressure.

Realistic dreaming also accompanied morbid levels of certain blood characteristics.

The year's low level of albumin was reliably and abnormally lower in five realistic dreamers ( $M = 3.12$ ,  $SD = 0.93$ ) than six fictitious or distorted dreamers ( $M = 4.05$ ,  $SD = 0.15$ ),  $t(4.24) = 2.12$ ,  $p < .10$ . Furthermore, the recent level of creatinine was reliably and nearly abnormally lower in realistic dreamers ( $M = 0.76$ ,  $SD = 0.17$ ) than fictitious or distorted dreamers ( $M = 1.00$ ,  $SD = 0.23$ ),  $t(9) = 1.95$ ,  $p < .10$ . Realistic dreamers also exhibited a reliably higher level of recent bilirubin ( $M = 1.02$ ,  $SD = 0.52$ ) than fictitious or distorted dreamers ( $M = 0.47$ ,  $SD = 0.18$ ),  $t(10) = 2.62$ ,  $p < .05$ , a higher level of which is associated with liver dysfunction in cancer patients.

### General Responses to Cancer

Additional insights into the dreams of patients differing in their response to cancer was afforded by a comparison of three types of patients. Crisis-induced reactors complained about having to endure the loss of certain freedoms and resources to their cancer. Self-initiated changers reported considerable initiative in altering their lifestyle following diagnosis. Nonreactors denied any change at all.

### Self-Initiated Changers

Self-initiated changers were troubled by both their cancer and a longstanding personal problem, and they downplay each by highlighting the other -- whatever they could do to alleviate the source of unpleasantness at hand. When asked to discuss their cancer, they denied the impact of their cancer by emphasizing their troubled history. For these patients, cancer was not qualitatively distinct from the prior problems which it compounded. The patients treated their cancer as the natural outgrowth or extension of a troubled history. Patient 1 emphasized depression and a history of failed relationships.