2000

The relationship between time perspective and fatigue

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THE RELATIONSHIP BETWEEN TIME PERSPECTIVE AND FATIGUE

A Thesis

Presented to

the Faculty of the Department of Psychology

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Gilbert Madrid

December 2000

UMI Number: 1402525

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ABSTRACT

THE RELATIONSHIP BETWEEN TIME PERSPECTIVE AND FATIGUE

By

Gilbert Madrid

A literature review on fatigue finds that certain individual differences have been identified as predictors of fatigue (e.g., anxiety and depression, neuroticism, overall health, quality of life, etc.). However, there has been no studies that have examined fatigue in relationship to time perspective. To examine this relationship, the present study analyzed the responses of 475 university undergraduates to a battery of scales which includes the 60-item Zimbardo Time Perspective Inventory (ZTPI) that examines five time dimensions; two aspects of past orientation (positive and negative), two aspects of present orientation (hedonistic and fatalistic) and a future orientation, and the 40-item Fatigue Impact Scale that assesses individual self-report on fatigue. Time Perspective groups were also created and analyzed. Moreover, further examination on the discriminant validity of the ZTPI was done using a scale that assesses stamina.

ACKNOWLEDGEMENTS

My warmest aloha to Dr. Robert Hicks for his most valued input and encouragement throughout the process of completing my thesis. I also want to extend my sincere appreciation to Dr. Pellegrini and Jose Bautista for their time spent reading and critiquing my work. To my parents who I give thanks for a lifetime of being there. And to my wife, Samara, who inspires me and without whose help and love this accomplishment would not have much meaning. And finally, I dedicate this work to my sons, Kili and Kyle who will always remain a part of me.

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The Relationship Between Time Perspective and Fatigue

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Running Head: TIME PERSPECTIVE

Footnote

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Abstract

A literature review on fatigue finds that certain individual differences have been identified as predictors of fatigue (e.g., anxiety and depression, neuroticism, overall health, quality of life, etc.). However, there has been no studies that have examined fatigue in relationship to time perspective. To examine this relationship, the present study analyzed the responses of 475 university undergraduates to a battery of scales which includes the 60-item Zimbardo Time Perspective Inventory (ZTPI) that examines five time dimensions; two aspects of past orientation (positive and negative), two aspects of present orientation (hedonistic and fatalistic) and a future orientation, and the 40-item Fatigue Impact Scale that assesses individual self-report on fatigue. Time Perspective groups were also created and analyzed. Moreover, further examination on the discriminant validity of the ZTPI was done using a scale that assesses stamina.

The Relationship Between Time Perspective and Fatigue

Being perceived as energetic, vibrant, and active, are all considered as positive characteristics that are associated with the potential for high productivity. These individuals are typically described as “go getters.” It is no wonder then, that recently the market has been bombarded with an abundance of energy drinks, herbs, and supplements that claim to enhance both mental and physical performance. The media reinforces this type of behavior by taking advantage of our society’s competitive, “looking for that edge” mentality with commercials and advertisements which are focused on these attributes. On the other hand, individuals who complain of fatigue display characteristics that are at the opposite end of the spectrum, and to a degree, they may be stigmatized as “lazy” for their lack of energy.

In this regard, it is somewhat surprising that depending on the survey methods used, fatigue is a common complaint by 10 to 32 percent of all patients (Katerndahl, 1993; Packer, Sauriol, & Brouwer, 1994). However, the problem could be significantly greater because it is thought that many cases of fatigue go unreported (Hart and Freel, 1982; Katerndahl, 1993; Morris, 1982). While fatigue is common, it is surprising to note that a search of the literature, revealed that there is no universally accepted operational definition of fatigue within or between disciplines for the study of this phenomenon (Eidelman, 1980; Piper, 1993; Potempa, 1993; Tiesinga, Dassen, & Halfens, 1998). As Hart and Freel (1982) have noted, defining fatigue is difficult as the term stems from areas of physiology, pathology, and psychology. The concept of fatigue has been further complicated by its many dimensions (Piper, 1989; Rhoten, 1982) and its subjective nature

(LaChapelle & Finlayson, 1998, Morris, 1982, Piper, 1989). However, by way of consensus, the North American Nursing Diagnosis Association (NANDA, 1989) formulated a definition of fatigue as: “an overwhelming sustained sense of exhaustion and decreased capacity for physical and mental work.” Varrichio (1985), had a similar definition except included the aspect of one’s , “....feelings of discomfort, and attempts to terminate the feelings of discomfort.” I propose that the composite of these two definitions would suffice for this study.

Studies on fatigue are important for improving and developing new management strategies in industry, sport, and the overall activities of daily life (Gilbert, 1971; Hart & Freel, 1982, Packer et al., 1994; Tiesinga et al., 1998). However, literature pertaining to the impact of fatigue in the daily life of individuals are few and establishing this impact is difficult because of the complexities of differences in our lives (Packer et al., 1994). However, certain individual differences have been identified as predictors of fatigue e.g., as anxiety and depression (Katerndahl, 1993; Kirk, Hickie, & Martin, 1999; Shanke, 1997), Type A (Meesters & Appels, 1996) neuroticism and health symptoms(Bennett, Smith, & Gallagher, 1996), sleep problems (Amantea, 1997), apprehension, self-efficacy, neuroticism (Bennett, Smith, & Gallacher, 1996; Buckley et al, 1999), and overall health, quality of life, and pain (Piper, 1989).

A promising variable that has not been studied in relationship to fatigue is time perspective (TP). The existing literature suggests that the manner by which we perceive time, has a substantial influence on how we manage our daily lives and impacts the many aspects of our existence. Put differently, time perspective is integral in the formation of

attitudes, decision-making, the way people relate to one another, and the overall state of psychological and physical health of an individual (Carstensen, Isaacowitz, & Charles, 1999; Mahon, Yarcheski, & Yarcheski, 1997; Zimbardo & Boyd, 1999). This follows Schwartz's (1977) conclusion that "Being-in-Time is reflective of the way in which one relates to most aspects of Being" (p.161). It is thought that we develop a time perspective which reflect our respective cultural and personal experiences. This sentiment echoes the time perspective theory that assumes that psychological time is constructed through cognitive processes of internal departmentalization of past, present, and future boundaries of time (Gonzales & Zimbardo, 1985; Keough, Zimbardo, & Boyd, 1999; Zimbardo & Boyd, 1999). It also reflects the socioemotional selectivity theory that states that "the perception of time plays a fundamental role in the selection and pursuit of social goals," which includes its affects on emotion, cognition, and motivation (Carstensen et al., 1999; Zimbardo & Boyd, 1999).

To better understand the meaning of what time perspective, Gorman and Wessman (1977) defined "time" as "the complex set of personally experienced cognitive constructs used by individuals and cultures to account for the order, duration and organization of events" (p. vii). Furthermore, as integrated in his life space model, Kurt Lewin's (1951) defined time perspective as the "the totality of the individual's view's of his psychological future and psychological past existing at a given time" (p.75), reflecting the integral role both past and future orientations have on current behavior. Lewin (1951) elaborated further and posited that "the reality level of the psychological past, present,

and future corresponds to the situation as they actually existed, exist and will exist according the individual's belief" (p.75).

However, limitations regarding TP studies have been noted. For example, Wallace (1956) indicated that "concepts such as time sense, time orientation, time perspective and time perception are employed interchangeably, often in the same investigation or utilized in such a manner that no clear idea of the intended meaning is given, either in conceptual or operational terms"(p.240). However, Hellwig (1978) did make the distinction between time perspective and temporal orientation; time perspective was referred to as the dimension of time (i.e., past, present, and the future) as perceived by the individual, whereas temporal orientation refers to the aspect of time dimension which has primary relevance for current choices. Moreover, Ruiz, Reivich, and Krauss (1967), after reviewing several studies of temporal orientation, concluded that diverse tests of temporal perspective share little, if any common variance. Wallace and Rabin (1960), in a review of the literature on temporal experience, discovered that "another obstacle in the way of adequate research in this area is the difficulty in selecting appropriate methodology" (p. 230). In this regard, Keough et al. (1999) and Zimbardo & Boyd (1999) reviewed the studies that attempted to measure TP using a single index e.g., the Thematic Apperception Test, the Experiential Inventory , the Circles Test, and Nuttin's motivational induction method. They reported that none of these method have been widely used because of low reliability and/or scoring difficulties (Zimbardo & Boyd, 1999). Conceptually they noted that these past methods for the measurement of TP have been primarily one dimensional, considering either present or future, and no

consideration have been given to past orientation. Zimbardo and Boyd (1999) suggest that these limitations in the earlier studies have precluded an adequate assessment of an individual's complex temporal profile. However, earlier studies have revealed the relationships between present or future orientation TP to psychological constructs such as attitude (Agnew & Loving, 1998), decision-making (Tomiyasu, 1997), attachment style, well-being and distress (Kazakina, 1999), and physical and psychological health (Mahon et al., 1997).

A recent study designed to validate the Zimbardo Time Perspective Inventory (ZTPI), which is subdivided into five temporal dimensions (i.e., Present-Hedonistic, Past-Negative, Future, Past-Positive, and Present-Fatalistic), Zimbardo and Boyd (1999) reported significant relationships between time perspective and a dozen different traditional psychological constructs such as aggression, depression, anxiety, sensation-seeking, self-esteem, and novelty seeking. They argued that the ZTPI remedies the limitations of previous scales due to its ease of administration and scoring, reasonable subscale reliabilities, demonstrated validity, multiple time frames and broad dimensions, and its clear theoretical foundation. One of the findings in the Zimbardo & Boyd study, which has implication in the present study, revealed that the Present-Fatalistic and Past-Negative scores yielded significantly positive correlations to depression and anxiety, while Future and Past-Positive scores yielded significantly negative correlations with the two same variables (Zimbardo & Boyd, 1999). These data indirectly suggest that the relationships between TP and fatigue should be measured. Thus, the purpose of this study is to further investigate the validity of the ZTPI and examine the relationship

between TP and fatigue. Since depression and anxiety has been significantly and directly related to fatigue (Katerndahl, 1993; Kirk et al., 1999; Shanke, 1997), it is speculated that the Present-Fatalistic and Past-Negative individuals will report higher levels of fatigue than will the Past-Positive, Future and Present-Hedonistic individuals. Thus, it is also hypothesized that scores for the Present-Fatalistic and Past-Negative dimensions of the ZTPI will be positively correlated to scores on the Fatigue Impact Scale and negatively related to Future and Past-Positive scores. Moreover, a measure on stamina will also be analyzed to further examine the discriminant validity and individual-difference variable qualities of the ZTPI whereby opposite predictions are being made on the same time dimensions in regard to fatigue. In other words, the Present-Fatalistic and Past-Negative individuals will report lower levels of stamina than will the Past-Positive, Future and Present-Hedonistic individuals, and that scores for Present-Fatalistic and Past-Negative time dimensions will be negatively correlated to scores on the Stamina Scale and positively related to Future and Past-Positive scores.

Method

The study examined archival data of two samples collected over two semesters within the same academic year at San Jose State University. However, it was determined that since the demographic characteristics of each of the samples were similar, they were combined to create a single sample.

Participants

The respondents were 518 introductory psychology students who were asked to fill out a large health study questionnaire as partial fulfillment for their research participation

requirement. However, only 475 respondents who gave complete records were used. From this sample, time perspective groups were created using a set criterion which yielded 44 respondents classified as Present-Hedonistic, 38 Past-Negative, 37 Future, 44 Past-Positive, and 39 Present-Fatalistic. The mean age of all respondents was 19.44 years. Female respondents made up 61 percent of the sample, compared to 39 percent for males. The largest ethnic representation of this sample was Asian (30.3%), followed by Caucasian (29.7%), Mexican-American (13.9%), African-American (6.5%), Pacific Islander (4.8%), other Hispanic (3.4%), American-Indian (.6%), and the remainder reported themselves as Other (10.3%).

Materials

The Zimbardo Time Perspective Inventory (Keough et al., 1999; Zimbardo & Boyd, 1999) consists of 60-items that was used to assess an individual's time perspective (see Appendix A). The inventory measures five time dimensions, which are 1) Present-Hedonistic, 2) Past-Negative, 3) Future, 4) Past-Positive, and 5) Present-Fatalistic.

The first temporal dimension, Present-Hedonistic, relates to a hedonistic view within one's present time frame and tendencies favoring risky behaviors. Examples of items that assess this temporal dimension are, "I take risks to put excitement in my life," "I find myself getting swept up in the excitement of the moment," and "I do things impulsively." The second temporal dimension, Past-Negative, relates to negative reflection on the past. Examples of items that assess this temporal dimension are, "Painful past experiences keep being replayed in my mind," "It's hard for me to forget unpleasant images of my youth," and "Things rarely work out as I expected." The third temporal dimension,

Future, relates to one's orientation toward goal setting and future rewards. Examples of items that assess this time dimension are, "I complete projects on time by making steady progress," "I make lists of things to do," "I keep working at difficult uninteresting work if it will help me get ahead." The fourth temporal dimension, Past-Positive, relates to a good-natured, positive longing of the past. Items relating to this temporal dimension are, "Happy memories of good times spring readily to mind," "I get nostalgic about my childhood," "It gives me pleasure to think about the past." The final temporal dimension, Present-Fatalistic, does not focus on a particular time orientation, but instead involves fostering the belief of predetermination where "fate" ultimately determines present and future outcomes, and therefore nullifies any determinations of individual actions. The ZTPI is measured on a 5-point Likert scale anchored from 1 "Very Untrue" to 5 "Very True."

The Fatigue Impact Scale (Fisk et al., 1994) scale consists of 40 self-report items that was used to measure an individual's level of physical and psychological fatigue (see Appendix B). Participants were asked to rate statements that pertain to themselves in the last month, up to the present, on such items as "I feel I cannot think clearly," "I find it hard to concentrate" and "I am less able to complete tasks that require physical effort" and so forth. The participants' responses were based on a 5-point Likert scale that ranged from 0 "No problem" to 4 "Extreme problem."

The 50-items Stamina Scale (Inman, Rutherford, & Hicks, 1999) was used to assess individual stamina (see Appendix C). Participants were asked to respond to items such as "I'm one of those people who just keep going no matter what happens,"

“Regardless of the task, enjoy hard work,” and “When I start a task I work until it is finished.” The scale was rated on a 5-point Likert scale anchored at 1 “Never” to 5 “Always.”

Procedure

Measures analyzed were part of a larger health questionnaire that was administered to introductory psychology classes. Respondents were asked to answer each section completely, then turn in the completed questionnaire to receive research participation credit.

Scoring

. Participants’ responses for items on each Zimbardo Time Perspective Inventory (ZTPDI) subscale were summed to create total subscale scores. Time Perspective groups was also created from this sample. The subscale total scores were then converted into standardized T-Scores. Only participants that had standardized scores that were equal to or greater than one standard deviation above the mean were placed in groups. Participants who met this criterion were then grouped according to their highest standardized score among the five subscales. Appendix D displays the T-Scores of participants that met the criterion.

Participants’ responses for each item on Fatigue Impact Scale were also summed to create a total fatigue score. Similarly, participants’ responses for each item of the Stamina Scale, were also summed to create a total stamina score. Twenty items in this 50-items scale were subject to reversed scoring to reflect a higher rating for positive direction responses relevant to stamina.

Results and Discussion

One of the hypothesis of this study predicted that persons in the Present-Fatalistic and Past-Negative groups would report greater levels of fatigue and lower levels of stamina than persons in the Past-Positive, Future, Present-Hedonistic groups. It was also predicted that scores for the Present-Fatalistic and Past-Negative dimensions of the ZTPI would be positively correlated with scores on the Fatigue Impact Scale and negatively correlated with scores on the Stamina Scale and the opposite pattern of correlations would be observed between Past-Positive, Future and Present-Hedonistic dimensions with regards fatigue and stamina.

To test the first of these hypotheses, the data which are summarized in Table 1, were first analyzed by computing separate one-way analyses of variances to test the overall ZTPI group differences for the Fatigue Impact Scale and the Stamina Scale. As a result of these analyses, a significant difference was found among the time perspective groups for both the fatigue scores and stamina scores i.e., $F(4, 197) = 4.81, p < .01$ and $F(4, 197) = 6.77, p < .01$, respectively. Next, a planned comparison was computed to test the hypothesis that the Present-Fatalistic and Past-Negative oriented groups would report having greater levels of fatigue and lower levels of stamina than the Past-Negative, Future, and Present-Hedonistic oriented groups. As was predicted, the combined Present-Fatalistic and Past-Negative groups ($M = 70.09, SD = 29.84$) reported having significantly greater levels of fatigue than did the combined Past-Negative, Future, and Present-Hedonistic groups ($M = 53.95, SD = 25.47$), $t(200) = 4.09, p < .001$ and significantly lower reports of stamina ($M = 143.08, SD = 21.18$) than the other combined

Table 1

Means and Standard Deviations for the Fatigue Impact Scale and Stamina Scale for each Time Perspective (TP) Orientation Group

TP Group ^a	<u>M</u>	SD
Fatigue		
Present-Hedonistic	56.00	26.07
Past-Negative	68.20	61.74
Future	61.74	23.61
Past-Positive	49.77	28.84
Present-Fatalistic	71.68	33.18
Stamina		
Present-Hedonistic	154.53	18.25
Past-Negative	152.64	26.56
Future	160.99	15.22
Past-Positive	153.62	16.40
Present-Fatalistic	143.51	14.49

^an = 202 for each group.

groups ($M = 156.12$, $SD = 16.92$), that is $t(200) = -4.86$, $p < .001$.

Thus, it is clear from these data that the patterns of scores on the ZTPI are significantly related to fatigue and stamina in a predictable manner. Consistent with this finding, as has been stated, it was also predicted that scores on the ZTPI scales would be correlated with both fatigue and stamina in a similar fashion.

To test this hypothesis the intercorrelations between each dimension of the ZTPI, the Fatigue Impact scale and the Stamina Scale were computed for all subjects (i.e., without regard to their ZTPI Dimension Group). The resulting intercorrelation matrix is presented in Table 2. As can be seen by inspecting Table 2, that the pattern of intercorrelations between the ZTPI dimensions and the Fatigue Impact Scale are only partly consistent with the hypothesis. That is, both the Past-Negative and Present-Fatalistic dimensions are positively and significantly related to scores on the Fatigue Impact Scales. The Present-Hedonistic, Future and Past-Positive dimensions are not correlated significantly with the Fatigue Impact Scale. However, the pattern of intercorrelations between the dimensions of the ZTPI and the scores on the Stamina Scale are all significant and meet the predictions made regarding the direction of these correlations. Thus, for the most part, the data presented in Table 2 are consistent with those that were used to test the first hypothesis and reinforce the relationships observed here between dimensions of the ZTPI, fatigue and stamina.

Perhaps the differences between the correlations computed for the fatigue and stamina scales, reflect a problem that was noted earlier. That is that fatigue has been a

Table 2

Correlation Matrix Between Time Perspective, Fatigue, and Stamina (Discriminant Variable)

(N = 475)

Scale	1	2	3	4	5	6	7
1. Present-Hedonistic	—						
2. Past-Negative	.32**	—					
3. Future	.33**	.26**	—				
4. Past-Positive	.37**	.05	.37**	—			
5. Present-Fatalistic	.31**	.36**	.11**	.07	—		
6. Fatigue Impact Scale	-.01	.28**	.06	-.07	.17**	—	
7. Stamina Scale	.15**	-.20**	.30**	.18**	-.17**	-.13**	—

** $p < .01$

difficult variable to define. It is possible that with a more reliable measure of fatigue, the correlations between the ZTPI and fatigue would have given a result that was more consistent with the correlation computed between the ZTPI dimensions and level of stamina.

Conclusion

In essence, the pattern of the data supports the notion that individuals having a Past-Negative or Present-Fatalistic time orientation or both, are more likely to possess the characteristics of fatigue as well as display signs of reduced stamina as a function of their negative attitudes toward the past, present, and prospects of future situations, as compared to the Past-Positive, Future, and Present-Hedonistic individuals. Furthermore, although only Past-Negative and Present-Fatalistic dimensions were found to be significantly correlated with the Fatigue Impact Scale, whereas Past-Positive, Future, and Present-Hedonistic dimensions were not, the significant correlations across all time dimensions with regard to the Stamina Scale demonstrates the ZTPI discriminant validity qualities and its importance as a viable measurement of psychological constructs that may seem unrelated to time but nevertheless having temporal underpinnings such as fatigue and stamina. This is based on the acknowledgement that “humans exist in time, that every human life is time bound, and that time is ubiquitous in every culture” (Zimbardo & Boyd, 1999, p. 1284). In addition, it can also be reasoned that Past-Positive, Future, and Present-Hedonistic individuals, according to the time perspective theory, are more likely to exhibit self-deterministic behaviors or have a healthier outlook on life i.e., Past-Positive individuals relationship to high self-esteem, Future individuals relationship to

reward dependence, and Present-hedonistic individual relationship to sensation seeking, may within their own individual time biases tend to be more consistent when self-reporting positive attributes such as stamina as oppose to fatigue. This could also be due to the possibility of being overly concerned for wanting to be associated with desirable traits that are admired and strived for in this society. In part however, this assumption addresses a limitation of this study whereby only self-report measures were used to test the hypotheses of this study. Nevertheless, the study has given focus to the previously unexamined relationship between time perspective and fatigue. Thus, it is concluded that the uniqueness of ones time orientation having influence on ones behavior, should be taken into consideration when developing new assessment methods for fatigue. Thus, further exploration of these relations are warranted whereby the findings and knowledge gained by this study may be extended.

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Appendix A

Zimbardo Time Perspective Inventory

Read each item and, honestly as you can, answer the question: "how characteristic or true is this of you?" Check the appropriate box using the scale. Please enter ALL of the following questions on both sides.

	Very untrue 1	2	Neutral 3	4	Very true 5
1. I believe that getting together with one's friends tom party is one of life' important pleasures.	1	2	3	4	5
2. Familiar childhood sights, sounds, smells often bring a flood of wonderful memories.					
3. Fate determine much in my life.	1	2	3	4	5
4. I often think of what I should have done differently in my life.	1	2	3	4	5
5. My decisions are mostly influenced by people and things around me	1	2	3	4	5
6. I believe that a person's day should be planned ahead each morning.	1	2	3	4	5
7. It gives me pleasure to think about my past.	1	2	3	4	5
8. I do things impulsively.	1	2	3	4	5
9. If things don't get done on time, I don't worry about it.	1	2	3	4	5
10. When I want to achieve something, I set goals and consider specific means for reaching those goals.	1	2	3	4	5
11. On balance, there is much more good to recall than bad in my past.	1	2	3	4	5
12. When listening to my favorite music, I often lose track of all time.	1	2	3	4	5
13. Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play.	1	2	3	4	5
14. Since whatever will be will be, it doesn't really matter what I do.	1	2	3	4	5
15. I enjoy stories about how things used to be in the "goo old times".	1	2	3	4	5
16. Painful past experiences keep being replayed in my mind.	1	2	3	4	5
17. I try to live my life as fully as possible.	1	2	3	4	5
18. It upsets me to be late for appointments.	1	2	3	4	5
19. Ideally, I would live each day as if it were my last.	1	2	3	4	5
20. Happy memories of good times spring readily to mind.	1	2	3	4	5
21. I meet my obligations to friend and authorities on time.	1	2	3	4	5
22. I've taken my share of abuse and rejection in the past.	1	2	3	4	5
23. I make decisions on the spur of the moment.	1	2	3	4	5
24. I take each day as it as rather than try to plan it out.	1	2	3	4	5
25. The past has to many unpleasant memories that I prefer not to think about.	1	2	3	4	5
26. It's important to put excitement in my life.	1	2	3	4	5
27. I've made mistakes in the past that I wish I could undo.	1	2	3	4	5
28. I feel that it's more important to enjoy what you're doing than to get work done on time.	1	2	3	4	5
29. I get nostalgic about my childhood.	1	2	3	4	5
30. I often have deep, long conversations with my friends.	1	2	3	4	5
31. Before making a decision, I weigh the cost against the benefits.	1	2	3	4	5
32. Taking risks keeps my life from becoming boring.	1	2	3	4	5
33. It's more important for me to enjoy life's journey than to focus only on the destination.	1	2	3	4	5
34. The concrete reality of the present moment is more valuable to me then the thoughts of the future.	1	2	3	4	5
35. Things rarely work out as I expected.	1	2	3	4	5
36. It's hard for me to forget unpleasant images of my youth.	1	2	3	4	5
37. It takes joy out of the process and flow of my activities, if I have to think about goals, outcomes, and products.	1	2	3	4	5

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Appendix B

Fatigue Impact Scale

Please circle the appropriate response to each of the following statements as they pertain to the last month including today.

0 = No problem, 1 = Small problem, 2 = Moderate problem, 3 = Big Problem, 4 = Extreme problem.

Because of my fatigue:

I feel less alert.	0	1	2	3	4
I have difficulty paying attention for a long period.	0	1	2	3	4
I feel like I cannot think clearly.	0	1	2	3	4
I find that I am forgetful.	0	1	2	3	4
I find it difficult to make decisions.	0	1	2	3	4
I am less motivated to do anything that requires thinking.	0	1	2	3	4
I am less able to finish task that requires thinking.	0	1	2	3	4
I find it difficult to organize my thoughts when I am doing things or work at home.	0	1	2	3	4
I feel slowed down in my thinking.	0	1	2	3	4
I find it hard to concentrate.	0	1	2	3	4
I am more clumsy and uncoordinated.	0	1	2	3	4
I have to be careful about pacing my physical activities.	0	1	2	3	4
I am less motivated to do anything that requires physical effort.	0	1	2	3	4
I have trouble maintaining physical effort for long periods.	0	1	2	3	4
My muscles feel much weaker than they should.	0	1	2	3	4
My physical discomfort is increased.	0	1	2	3	4
I am less able to complete tasks that require physical effort.	0	1	2	3	4
I worry about how I look to other people.	0	1	2	3	4
I have to limit my physical activities.	0	1	2	3	4
I require more frequent or longer periods of rest.	0	1	2	3	4
I feel that I am more isolated from social contact.	0	1	2	3	4
I have to reduce my workload or responsibilities.	0	1	2	3	4
I am more moody.	0	1	2	3	4
I work less effectively. (this applies to inside or outside the home)	0	1	2	3	4
I have to rely on others to do things to help me or do things for me.	0	1	2	3	4
I am more irritable and more easily angered.	0	1	2	3	4
I am less motivated to engage in social activities.	0	1	2	3	4
I few social contacts outside of my own home.	0	1	2	3	4
Normal days to day events are stressful to me.	0	1	2	3	4
I avoid situations that are stressful to me.	0	1	2	3	4
I have difficulty dealing with anything new.	0	1	2	3	4
I feel unable to meet the demands that people place on me.	0	1	2	3	4
I am less able to provide financial support for myself and my family.	0	1	2	3	4
I engage less in sexual activity.	0	1	2	3	4
I am less able to deal with emotional issues	0	1	2	3	4
I have difficulty participating fully in family activities.	0	1	2	3	4
I am not able to provide as much emotional support to my family as I should.	0	1	2	3	4
Minor difficulties seem like major differences.	0	1	2	3	4
I have difficulty planning activities ahead of time.	0	1	2	3	4
My ability to travel outside my home is limited.	0	1	2	3	4

Appendix C

Stamina Scale

Instructions: This questionnaire deals with persistence and hardiness. For each question select the response which best describes you and your feelings. Select from among the following response alternatives:

Never (or almost never) Seldom Occasionally Frequently Always (or almost always)

Circle the first letter that corresponds to your choice.

1. I'm one of those people who just keep going no matter what happens.	N S O F A__
2. When I participate in a sport, I actually enjoy the games much more than practicing the sport.	N S O F A__
3. I seem to have less energy than other people.	N S O F A__
4. Regardless of the task, I enjoy hard work.	N S O F A__
5. I often find it hard to get things done.	N S O F A__
6. My involvement in nonwork activities or hobbies provides me with a sense of meaning and purpose	N S O F A__
7. I follow the rule that "practice makes perfect" in doing the things I do.	N S O F A__
8. The work and activities required to reach a goal are often more pleasing than the goal itself	N S O F A__
9. I tend to fall apart easily.	N S O F A__
10. I find it hard to get things done when I am upset.	N S O F A__
11. My life is filled with challenges that need to be met.	N S O F A__
12. Most people consider me to be relaxed and easygoing.	N S O F A__
13. I am usually competitive and hard driven.	N S O F A__
14. Most people consider me to be hardworking and energetic.	N S O F A__
15. I set goals and deadlines to help me finish my work.	N S O F A__
16. I consider myself to be much more responsible than most people.	N S O F A__
17. When I start a task I work until it is finished.	N S O F A__
18. Typically, when preparing for an exam, I wait until just before the exam to start studying.	N S O F A__
19. Leisure time, to me, is more important than work.	N S O F A__
20. I have the energy and commitment to earn and undergraduate degree.	N S O F A__
21. If I could earn an undergraduate degree without going to college, I would be pleased.	N S O F A__
22. Often feel that other students in my course are better prepared than me.	N S O F A__
23. I feel that I am more able to succeed than most students that I have known.	N S O F A__
24. When I think about my future career, I am not sure what I would like to do.	N S O F A__
25. I feel that I am in the top 10% of my class.	N S O F A__
26. I enjoy studying for my favorite courses.	N S O F A__
27. I enjoy studying for all my courses.	N S O F A__
28. I enjoy solving problems.	N S O F A__
29. I schedule my time so that I study at regular intervals each week.	N S O F A__
30. I often seek coaching or advice that will help me improve my ability	
31. To perform tasks.	N S O F A__
32. I have the energy and commitment to complete a demanding graduate To perform tasks.	N S O F A__
33. I never have felt that life is empty or has no meaning for me.	N S O F A__
34. I have little enthusiasm for my work.	N S O F A__
35. I work just to get paid; I really don't enjoy my work.	N S O F A__
36. The most exciting things for me are often times are my own fantasies.	N S O F A__
37. Much of my life I find uninteresting.	N S O F A__
38. My daily life is full of things that keep me interested.	N S O F A__
39. I get discouraged in my present work.	N S O F A__
40. I find I have very little interest in my present job.	N S O F A__
41. I often wonder why I work at all.	N S O F A__
42. I am encouraged by seeing others around me succeed.	N S O F A__
43. I need to be recognized for my achievements to feel good about them.	N S O F A__
44. Regardless of praise from others I still question myself and my Behavior/actions constantly.	N S O F A__
45. Those around me feed off of my enthusiasm; I motivate others.	N S O F A__
46. Lately my life revolves around what I can do to make myself happy And more successful.	N S O F A__
47. I have always had role models who influence the way I lead my life.	N S O F A__
48. I study for my courses about____ hours per week (fill in you answer).	
49. I have received recognition for my achievements for one or more activities.	True or False
50. I am considered to be outstanding in the following activities (please list below).	

Appendix D

Summary of Criterion Standardized T-Scores Used to Establish Time Perspective Groups

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
.4	.01	1.32	-.15	.59
.14	-1.35	1.65	1.22	-.77
-1.12	-1.10	-.02	1.22	-1.79
1.66	1.62	-.19	1.91	1.27
.78	1.12	.65	-.38	.08
.78	.75	1.15	1.00	1.78
.40	1.37	-.19	-.15	1.40
-.11	.87	1.15	.08	-.09
1.16	.38	-.53	-.15	-.94
-.49	-.36	.15	-.38	-1.78
2.14	.87	-.02	1.45	-.43
-1.38	.38	-.36	-1.06	1.27
1.41	.63	2.32	1.45	.25
1.28	1.24	.82	1.00	1.78
1.28	.63	-.36	.31	-1.62
1.54	-.73	-.19	.54	-.09
1.41	-.36	1.65	-.38	-.09

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
-1.38	.26	2.49	1.45	-.26
1.66	-1.23	.31	1.2	-.43
1.16	.13	.98	.31	-1.79
.78	-.11	1.15	.31	-.40
.52	.87	1.15	.08	1.61
-.36	-.24	.02	-.61	1.61
.40	1.24	-.53	.31	-.94
-.74	1.12	-.02	-1.06	.25
-1.50	.01	.82	1.45	-.77
.27	2.60	-.36	.08	.25
-1.12	1.74	.98	.31	-.94
1.66	-.73	1.49	1.22	.59
-.24	.38	1.15	-.83	-.09
-.36	.01	1.65	.08	-.77
1.03	-.86	-.02	-.15	-.94
-1.25	.01	-2.70	-.83	1.44
.40	-1.84	1.32	1.22	-.09
.65	1.12	.48	1.00	1.61
.52	.75	-.19	1.68	.25
1.16	1.12	-.53	.54	1.10
.34	.09	1.61	.10	.81

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
.40	1.00	1.65	.08	1.10
-.24	.38	1.32	.54	1.78
-.74	1.12	-.02	.54	1.44
1.28	-.11	1.32	1.00	-.60
-.36	-.24	-.69	1.22	.93
.27	1.37	-.86	-.83	1.27
1.66	.63	-.36	-.61	1.95
2.17	1.62	1.32	.77	1.61
1.16	-.49	1.49	.08	-.26
-.24	-.49	1.82	.31	.76
.65	1.12	-.49	-.15	.59
.02	1.12	-.86	-2.21	.76
2.80	1.37	1.15	1.45	.08
.40	.63	-.19	.31	1.10
2.30	1.49	1.32	-.15	-1.11
-.62	-.73	-1.20	1.45	.93
1.03	1.24	-.02	-1.29	-1.62
1.41	-.98	-.19	1.68	.42
1.28	-1.23	.48	.77	-.09
.52	1.12	1.65	1.00	2.80
.27	.87	.65	1.45	.42

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
1.03	-.36	-.69	1.45	1.60
-.74	.26	.31	.08	1.44
.11	-1.23	-.19	-1.29	1.10
-.74	1.00	-.36	.54	-.43
.90	-.73	2.16	-.61	-1.11
1.41	1.37	-1.03	-.15	.93
-.36	-.36	.36	1.22	-.43
-1.88	.24	.82	1.45	-.60
.52	1.74	.48	.31	1.78
1.66	1.37	.82	.08	.59
.40	.50	1.65	.08	.76
1.66	1.99	2.49	1.45	-.09
1.03	-1.23	.15	1.22	-.26
-.62	1.12	-.19	-.83	3.48
1.03	.63	.48	-.38	3.42
.40	1.12	-.36	.08	.42
1.54	-.11	.15	.54	1.95
-.11	1.37	-.36	-.83	-.77
2.68	1.12	.98	.31	.76
-1.12	-.98	1.49	1.45	-1.45
-.62	-.86	.98	.31	.76

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
.78	2.36	-1.03	.54	.76
1.54	.26	-1.20	.31	.25
1.66	2.36	2.16	-.15	.76
1.28	.75	-.02	.31	-1.11
1.28	1.12	.65	-.61	.59
1.03	.87	.82	-1.06	-.09
.27	1.12	.65	-.61	.42
2.04	.01	.98	-1.06	-.26
2.04	.38	-1.36	.54	-.43
.02	-.36	-1.03	1.45	-.77
.40	2.11	2.16	.77	.42
1.16	.63	.31	.31	1.27
1.28	-.98	1.15	-.61	-.43
2.17	2.11	1.49	1.68	-.43
2.42	1.49	.31	1.00	2.29
-1.00	-1.23	1.65	2.14	-.94
1.54	-.86	-.86	-.38	.59
.02	-.73	-.02	1.22	-1.11
.65	1.12	.98	1.45	.42
1.03	.50	.65	.77	.59
2.17	.50	.15	1.91	-.09

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
-1.12	2.60	-1.36	-1.06	-.77
.90	.50	.48	1.45	-.09
.14	1.12	1.15	-1.06	.42
2.17	2.48	.65	.31	.08
.90	1.74	1.82	.08	1.10
.78	-.36	.48	1.45	.42
.02	-1.84	.48	1.45	-.60
-1.63	-.11	-.53	-1.06	1.61
-1.12	1.37	.15	1.22	-.09
.49	.63	.31	2.37	.08
.65	.63	1.15	1.22	-.43
.52	-1.60	1.32	2.14	-.09
-.11	1.24	.31	.08	-.09
.65	-.73	.65	1.68	-.26
1.66	-.86	.98	2.14	-1.11
-.49	-.24	-.53	-.83	1.27
.90	1.37	-.53	-.83	1.27
1.41	.63	.82	1.68	.93
.40	2.60	-.36	-1.75	-.09
-2.90	2.60	2.32	-1.52	-1.11
-.24	-.49	1.82	.31	.76

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
-.24	.26	-1.03	1.68	.42
-1.12	1.12	.15	-1.29	1.10
-.87	-1.72	1.49	.08	-.94
.14	-2.09	.31	1.68	-.77
.65	-.49	1.99	1.00	-.26
1.54	-.98	.48	.08	.93
1.28	-2.34	.15	.08	-.77
.40	-3.08	1.65	1.00	.42
-.74	.01	1.32	-.61	2.12
-.24	1.86	1.65	-.83	-.26
1.16	1.37	-.19	1.00	-1.28
-.62	1.49	1.32	.08	.25
-2.14	-.61	-.69	1.45	.25
1.03	1.49	1.82	2.82	2.29
.02	-.49	1.15	.08	-1.11
1.16	1.99	2.16	1.91	2.29
.02	1.37	.82	-1.06	.59
1.16	.38	2.32	.08	.93
-.62	-1.84	.82	6.94	-2.13
-.24	-1.97	.98	1.68	.08
.36	.13	.15	-1.29	1.27

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
.27	1.62	.48	1.00	-1.11
1.41	-.98	.31	-.61	2.46
.27	.50	.15	.77	1.10
-1.76	.01	1.65	.08	-.60
.27	1.74	-1.03	1.00	3.14
.78	1.12	-.02	.31	.25
1.03	.87	.65	1.00	.25
.78	1.99	.98	-.15	.93
.90	-1.10	-.19	1.91	.42
1.41	.63	-.36	-1.06	.76
-.74	1.24	-.69	-2.21	.08
1.54	.50	-.53	.54	-.60
1.41	.26	.82	1.22	.08
.65	1.49	.65	.77	.08
-.11	-.49	.48	1.91	-.09
.90	.26	.48	.31	1.61
2.42	.38	-.36	.77	-1.11
1.41	.38	-.36	1.68	.59
1.16	1.86	1.32	-.38	.42
.02	-.49	1.15	.54	-.60
.65	1.74	-.53	-.38	.93

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
-.74	-.24	-.19	1.22	.25
2.68	1.99	1.15	-.61	1.10
.02	-.86	1.49	-.15	-.77
.40	1.24	-.53	.08	-.26
.27	-.36	-.36	-.61	1.78
.78	.63	.65	1.45	.25
.90	-.36	-.02	.77	1.44
.14	.50	-.69	.31	1.10
-1.00	-.36	1.15	.31	-2.13
.65	1.12	.48	.77	1.61
1.16	-.61	1.15	-.15	.76
-.24	1.24	.31	.08	-.09
2.68	1.37	-1.36	.77	2.29
.27	1.24	.48	.08	.25
2.04	.63	.98	1.00	.42
1.41	-1.35	.15	1.22	-.94
-1.63	.26	1.65	-.15	-.26
-.74	1.24	-.19	-.38	.93
.65	1.24	-.19	-.83	.76
-1.00	1.49	-1.20	-.38	2.12
-.24	1.49	.82	-.38	1.44

Present Hedonistic	Past Negative	Future	Past Positive	Present Fatalistic
.52	.63	1.49	.54	-.60
.90	.50	1.82	2.60	.93
.78	1.1	2.48	1.91	-.26
1.28	.13	-.19	.08	-.09
1.16	.50	1.32	.31	1.78
1.41	-1.72	.65	1.91	-.43
-.11	-.86	1.65	.77	-.77
.65	.63	.31	2.60	.08
1.54	-1.60	-.69	.08	.59
1.03	.01	-.53	.54	.59
.14	.01	-1.70	1.22	.25
1.03	.13	.65	-.15	-.77
.40	-.73	.98	1.91	-.26
.52	-.36	1.32	.31	.76
-1.12	-.61	1.32	-.15	-.09
.52	-1.60	-2.87	-1.75	1.10
1.03	.38	-.86	.77	-.43