

## Emotion and Stress in Serious and Hedonistic Leisure Sport Activities

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Forty-four Japanese women recreational tennis players aged 28 to 58 years old acted as the main sample of volunteer participants in this reversal theory-based study of changes in emotion and stress induced by a single session of leisure activity. Based on their primary reason for playing tennis (e.g., health, exercise, weight control, versus fun, challenge), participants were divided into "serious" (telic) and "hedonistic" (paratelic) leisure groups respectively. Participants completed the Tension and Effort Stress Inventory (TESI), five minutes before and within five minutes after playing tennis. Although no significant inter-group differences were found, a number of significant pre- to post-session intra-group changes were revealed following statistical analysis. For the serious group, a decrease in overall unpleasant emotions was significant, as were decreases in external tension stress. A significant decrease in external tension stress was also obtained for the hedonistic group. For individual emotions, a number of statistically significant results were also revealed. Taken together, the results indicated that, especially for the serious group, tennis activities had a therapeutic effect, producing an improvement in overall affect.

**KEYWORDS:** *Emotional health, reversal theory, coping, Japanese women*

### Introduction

This study utilizes reversal theory (Apter, 1982, 1989), a psychological theory of motivation, emotion and personality. The theory is based on structural phenomenology, an approach that is concerned with the structure of experience, how features of that experience relate to each other, and the way that experience changes over time. The theory has considerable potential for understanding psychological aspects of participation in leisure activities, but to date has received little attention in the literature pertaining to leisure and recreation. Therefore, a description of reversal theory is included here to familiarize readers with its main concepts. Only a brief description of reversal theory is provided; for a more complete description see Apter (1982, 1989).

### *Reversal Theory*

Subjective experience plays an important role in reversal theory. The theory argues that the only way to truly understand the motivation and emotion of an individual involved in any activity is to examine the manner in

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which a person interprets and structures his or her own motivation and emotion. Each person's experience is thought to be based on the interactions of a number of pairs of metamotivational states. These pairs of states are thought to exist together as alternative stable states within a bistable system and people are thought to alternate or reverse between them. Switching on or off an electric appliance is a straightforward example of a bistable system, where either "on" or "off" represents the alternative stable states. Although individuals are likely to vary in the amount of time they spend in different states, reversals are thought to take place on a relatively frequent basis.

There are four pairs of metamotivational states, (telic-paratelic, negativistic-conformist, mastery-sympathy and autic-alloic states). A person's behavior in the telic state (from the ancient Greek "telos" meaning "goal" or "end") is typically serious and goal-oriented, with a preference for low levels of arousal. It tends to involve planning ahead and is future-related. As in many work or study situations, pleasure and satisfaction in this state result from goal achievement. In the paratelic state (from the ancient Greek "para" meaning "beside" or "alongside"), a person's behavior is spontaneous, impulsive and sensation-oriented, with a preference for high levels of arousal. In this state, pleasure comes from experience in the immediate situation, for example, when surfing or skiing. In the negativistic state, individuals tend to be rebellious, stubborn and defiant, for example, when an environmentalist protests about ecological issues. In contrast, in the conformist state, individuals tend to be agreeable and cooperative such as when complying with park rules when camping in a national park. When in the mastery state, people generally want to gain control over a person, object or situation, for example, in business negotiations where they may need to be tough and strong to be successful. The sympathy state is paired with the mastery state and is concerned with empathy with others and feelings of harmony or unity often found at local community activities. The fourth pair of states also focus on interactions with other people or objects. In the autic state (from the ancient Greek "auto" meaning "self"), people are concerned with themselves and gain satisfaction from the outcome of any interaction in terms of what happens to themselves, for example at a job interview. When the alloic state (from the ancient Greek "allo" meaning "other") is operative, individuals are concerned with what happens to other people or things. Pleasure and satisfaction are gained from a successful outcome in terms of what happens to the other party, as when giving birthday gifts to a son or daughter. The characteristics of the different states are summarized in Table 1.

According to reversal theory, there are three sets of conditions under which reversals are likely occur. First, the occurrence of a contingent event may act as an inducing agent to trigger a reversal from one state to the other. Second, under conditions of frustration, where, for example, the needs of the person in a particular state are not being met, a reversal is likely to take place. Third, under conditions of satiation. The longer a person remains in a metamotivational state, the greater is the likelihood that a reversal to another state will occur.

*TABLE 1*  
*Characteristics of the Four Pairs of Metamotivational States*

<b>TELIC</b>		<b>PARATELIC</b>
Arousal-avoiding		Arousal-seeking
Goal-oriented		Sensation-oriented
Serious-minded	↔	Playful
Future-oriented		Present-oriented
Planning ahead		Spontaneous
Prefer important activity		Prefer unimportant activity
Attempt to complete activity		Attempt to prolong activity
<b>CONFORMIST</b>		<b>NEGATIVISTIC</b>
Desire to comply with rules	↔	Desire to break rules
Compliant		Rebellious
Cooperative		Stubborn
Agreeable		Angry
<b>MASTERY</b>		<b>SYMPATHY</b>
Willingness to compete		Willingness to cooperate
Desire for control	↔	Desire for harmony/unity
Focus on toughness strength		Focus on tenderness and sensitivity
<b>AUTIC</b>		<b>ALLOIC</b>
Concern with self		Concern with other(s)
Desire to gain		Desire to give
Suffering loss unpleasant		Suffering loss pleasant
Not identifying with other(s)	↔	Identifying with other(s)
Egoistic		Altruistic
Focus on own feelings		Focus on feelings of others

The theory also posits that particular metamotivational state combinations result in the experience of 16 primary emotions. Combinations of telic-paratelic and negativistic-conformist states give rise to four pleasant somatic emotions (relaxation, excitement, placidity, provocativeness) and four unpleasant somatic emotions (anxiety, boredom, anger, sullenness). Combinations of mastery-sympathy and autic-alloic states result in an additional eight transactional emotions, four pleasant (pride, gratitude, modesty, virtue) and four unpleasant emotions (humiliation, resentment, shame, guilt). A summary of the different metamotivational state combinations and resulting emotions are shown in Table 2.

Consider, for example, the emotions associated with the telic and paratelic states. Among the characteristics often associated with behavior in the telic and paratelic states is a preference for low and high levels of arousal, respectively. This gives rise to pleasant feelings of (telic) relaxation and (paratelic) excitement. Conversely, high levels of arousal in the telic state and

*TABLE 2*  
*The Somatic and Transactional State Combinations*  
*and the Resulting 16 Primary Emotions*

State Combination	Somatic Emotions	
	Pleasant	Unpleasant
telic conformity	relaxation	anxiety
telic negativism	placidity	anger
paratelic conformity	excitement	boredom
paratelic negativism	provocativeness	sullenness
State Combination	Somatic Emotions	
	Pleasant	Unpleasant
autic mastery	pride	humiliation
autic sympathy	gratitude	resentment
alloic mastery	modesty	shame
alloic sympathy	virtue	guilt

low levels of arousal in the paratelic state are associated with unpleasant feelings of (telic) anxiety or (paratelic) boredom. Mismatches or discrepancies between preferred levels of arousal and the actual level of arousal experienced by an individual are thought to provoke stress.

In reversal theory, there are two forms or types of stress. Stress caused by a mismatch in arousal levels is known as tension-stress, and the effort expended in trying to reduce tension stress is known as effort stress. Tension stress is thought to have two sources: First, somatic or bodily stress and, second, stress arising from external (to an individual) factors.

For example, a person working in a factory who is trying to complete a task with a time deadline may begin the task in the telic state with no mismatch in arousal levels. As the person works to complete the task, a breakdown in machinery interferes with the pursuance of the task and results in increased arousal, producing tension stress in the form of unpleasant feelings of anxiety. If the breakdown can be speedily corrected, the feelings of anxiety may dissipate, but if it cannot be corrected speedily or if it recurs, it is likely that tension stress will increase even further. These unpleasant feelings are likely to lead to effort stress as the person tries to initiate some form of compensatory coping behavior aimed at reducing anxiety and tension stress and minimize interference in completing the task. In this telic-paratelic example, arousal was the important variable in telic and paratelic forms of tension stress. Other forms of tension stress (and effort stress) can also result from mismatches in important variables associated with the other states. In the case of the transactional states, the important variable is the outcome of interactions with others, and mismatches between actual and desired out-

come may also lead to tension stress. Equally, the person experiencing unpleasant transactional emotions may also invest effort (stress) to overcome the tension stress. In other words, stress and efforts to cope may have both somatic and transactional elements.

To conclude this section explaining reversal theory, it should be pointed out that a person's hedonic tone or experienced pleasure in a situation is the result of a balance of pleasant and unpleasant emotions. This is similar to some other approaches in the psychological study of mood and emotion, for example, Watson and Tellegen's (1985) model of positive and negative affect. However, while Watson and Tellegen's (1985) model is data-driven, Apter's (1989) model of pleasant and unpleasant emotions and hedonic tone is theory-driven. Moreover, reversal theory, with its distinction between somatic and transactional emotions, is highly suited to the study of leisure activities because it not only allows for bodily reactions to certain activities and situations, but can also deal with transactional emotions based on interactions with other people which are a vital element in many leisure pursuits. In addition, it links aspects of hedonic tone to the experience of stress and makes a direct connection between unpleasant emotions and stress. For example, it might be expected that leisure activities, particularly those based on exercise or sport, might have a therapeutic effect which would not only produce positive changes in mood or emotion and decreases in stress, but also a general improvement in overall affect. Participation in this type of leisure activity may be part of the deliberate self-regulation of mood or affect that has been recognized for some time in mood research (e.g., Morris & Reilly, 1987; Thayer, Newman, & McClain, 1994).

It should be noted that the remainder of the Introduction section, and the research study which follows, concentrate on telic and paratelic motivation for leisure participation. Motives for participation associated with the other metamotivational states are not addressed here.

#### *Serious Versus Hedonistic (or Casual) Forms of Leisure*

Reversal theory would also seem to offer great potential for understanding serious and hedonistic forms of leisure. Stebbins (1992, 1997) has set out what he considers to be distinct differences between serious and casual or hedonistic forms of leisure. Serious leisure was defined as "the systematic pursuit of an amateur, a hobbyist, or a volunteer activity sufficiently substantial and interesting for the participant to find a career there in the acquisition and expression of a combination of special skills, knowledge and experience" (Stebbins, 1997, p. 17). Casual leisure was defined as "immediately, intrinsically rewarding, relatively short-lived pleasurable activity requiring little or no special training to enjoy it" (Stebbins, 1997, p. 18).

At first glance, there might appear to be some overlap between Stebbins' (1992, 1997) notions of serious and casual leisure activity and behavior in the telic and paratelic states as described by reversal theory (see Table 1). However, a closer look reveals that there are also distinct differences. For

example, both casual and paratelic forms of leisure are considered to be hedonistic, with participants largely interested in rewards best described as immediate sensation, pleasure and enjoyment. In contrast, participants in serious or telic forms of leisure are more concerned with goal achievement and the satisfaction associated with completing plans. However, paratelic leisure activity, unlike casual leisure, can require combination of special skills, knowledge and experience. A good example is provided by the activity of hanggliding, where participants need not only the skill to launch and fly the hanglider, but also the knowledge and experience to use air currents and thermals to their advantage in the pursuit of thrills and excitement. In other words, it is impossible for an individual to enjoy the paratelic arousal-seeking thrills of hang gliding without at least some training and experience. Also, it is perfectly possible for a person to be seriously involved in a telic-oriented leisure activity like painting or playing a musical instrument without ever becoming "good at it" and developing special skills or knowledge. Furthermore, according to reversal theory, Stebbins' casual leisure participant with minimal skill, knowledge and experience could, while he or she is engaged in the leisure activity, be equally as "serious" or telic-oriented as Stebbins' serious leisure participant who has been pursuing the activity on a regular basis for years. This brings the discussion here back to the important role that subjective experience plays in a person's motivation and emotion during leisure participation, a point recognized by a number of writers in the leisure literature, including Ingham (1987) who almost 15 years ago stated:

Some authors focus particular attention to the quality of the "leisure experience" itself, whilst others are more concerned with the conditions which are most likely to bring about feelings of leisure. What is stressed by all is the importance of giving serious consideration to how the activity and/or experience is perceived by the participant, as opposed to defining it by some set of external criteria. (Ingham, 1987, p. 1)

In terms of the pleasure obtained from casual and serious leisure, Stebbins (1997) stated, The serious leisure participants interviewed by the author were inclined to describe their involvements as satisfying or rewarding rather than pleasurable or enjoyable. Still overlap exists, for both casual and serious leisure offer the hedonic reward of self-gratification (the activity is fun to do), even though it is considerably more prominent in the first than the second. (p. 21)

As far as reversal theory is concerned (and contrary to Stebbins' view), however, there would appear to be no obvious reason why participants in a serious (telic) leisure activity should not experience pleasure or self-gratification to any greater or lesser extent than participants in a hedonistic (paratelic) leisure activity. Although the reasons why they participate in leisure activity may be very different (e.g., telic satisfaction of goal achievement vs paratelic hedonistic sensation), there is no reason why there should necessarily be any differences in their overall psychological experience. Rather, it is the nature of their motivation for taking part and the source of the pleasurable reward,s which is likely to be different. Both types of activities

can be pleasant experiences, as a result of improved hedonic tone or affect, derived from increases in pleasant and/or decreases in unpleasant emotions. In simple terms, there is no reason why a person seriously engaged in restoring a vintage car in the telic state should experience any more or less pleasure from the activity than a person who enjoys surfing at the beach in the paratelic state.

Taking the reversal theory stance a stage further, in any one leisure activity some participants could be taking part in the telic state while others might be in the paratelic state. Whether in the telic or the paratelic state, each participant would be able to enjoy the pleasurable rewards associated with that state. The aim of the present research study was to compare the psychological experiences of participants in a single leisure activity (recreational tennis) whose primary reason for participation was either telic- or paratelic-oriented. At focus were possible changes in emotions and stress associated with their leisure participation.

It was hypothesized:

(1) As argued in the Introduction, there would be no inter-group differences in the psychological response (emotions and stress) of the serious (telic) and hedonistic (paratelic) groups to participation in recreational tennis.

(2) Participation in recreational tennis would lead to pre- to post-session intra-group increases in both the serious (telic) and hedonistic (paratelic) groups' experience of total pleasant emotions and/or decreases in their experience of total unpleasant emotions and tension and effort stress.

(3) Pre- to post-session intra-group changes in the serious (telic) and hedonistic (paratelic) group's experience would be evident in total pleasant and unpleasant somatic emotion scores.

(4) Pre- to post-session intra-group changes in the serious (telic) and hedonistic (paratelic) group's experience would be evident in total pleasant and unpleasant transactional emotion scores.

## Method and Procedure

### *Participants*

A group of Japanese women playing recreational tennis at an outdoor community tennis facility were the volunteer participants in this study ( $N = 64$ ;  $M = 43.3$  yr.;  $SD = 6.57$ ). The recreational tennis activities were a lesson consisting of basic skill training, shot practice and mini-game activities supervised by a tennis coach, or a series of doubles games played among participants. Participants were approached at the tennis facility and, after a brief explanation of the purpose of the study, agreed to take part. Each participant completed the psychological questionnaire five minutes before and within five minutes after playing tennis.

*Questionnaire Measure*

On the first administration of the questionnaire, a number of additional optional questions, designed to provide background biographical information about the participants, were also included. These questions were concerned with participants' age, marital status, length of time married, number of children, occupation (if any), number of hours worked per week, husband's occupation and, finally, their primary reason for playing tennis. This latter question was important because it allowed the participants to be divided into two groups based on the nature of their primary reason for playing. Answers which described reasons for playing tennis like health, exercise, weight control, stress relief, or achievement were categorized as serious (telic), reasons like fun, or challenge as hedonistic (paratelic). Although almost a third of participants choose not to answer this question, numbers were sufficient to allow "serious" ("telic") ( $n = 30$ ) and "hedonistic" ("paratelic") ( $n = 14$ ) groups to be separated out from the main sample.

A Japanese version of the state version of the Tension and Effort Stress Inventory (TESI; e.g., Svebak, 1993; Svebak, Ursin, Endresen, Hjelmen, & Apter, 1991) was the psychological questionnaire used in this study. Translation (English to Japanese and translation back from English to Japanese) was undertaken by four experts to ensure the accuracy of the Japanese state TESI. The state version of the TESI has 20 individual response items set out in three sections. Section A (2 items) requires respondents to estimate the degree of pressure, stress, challenge or demand that they are exposed to in the current situation with respect to (1) external factors and (2) somatic (their own body) factors. Section B (2 items) is concerned with the degree of effort that they invest in the current situation to cope with pressure etc. with respect to (1) external factors and (2) somatic factors. The third section contains a list of 16 different primary emotions proposed by reversal theory and derived from particular combinations of metamotivational states (Apter, 1989; see Introduction). Scores for total pleasant (relaxation, excitement, placidity, provocativeness, pride, gratitude, modesty, virtue) and total unpleasant emotions (anxiety, boredom, anger, sullenness, humiliation, resentment, shame, guilt) can be compared, as can scores for pleasant and unpleasant somatic and transactional emotions (see Introduction). Each individual emotion item can also be considered in its own right. Participants respond to each of the items on the TESI by circling the appropriate figure on a scale of 1 to 7, ranging from "not at all" to "very much," placed alongside each item.

With respect to validity and reliability, early work by the author (Svebak, 1997) in academic settings established the validity of the TESI which was subsequently confirmed in a number of medical studies (e.g. Svebak et al., 1991; Bru, Mykletun, & Svebak, 1997). Internal reliability checks through, for example, calculation of Cronbach's (1951) coefficient alpha values should not be necessary because the TESI item scores are not the equivalent of trait-type subscale scores. They are the result of state responses and merely



share only pleasant or unpleasant hedonic tone. However, Cronbach's coefficient alpha values were calculated in a previous study which used the TESI measure (Males & Kerr, 1996) and found to be satisfactory: 0.88 for pleasant emotion and 0.75 for unpleasant emotion.

#### *Data Scoring and Analysis*

The SPSS 6.1 software program was used for the statistical analyses. The TESI scores were produced for groupings of total pleasant and unpleasant emotions, along with tension stress and effort stress (tension external, tension somatic, effort external, effort somatic). As recommended by Vasey and Thayer (1987) and Schutz and Gessaroli (1987), when multiple repeated measures are involved in an analysis, a doubly multivariate (DM) analysis (MANOVA) was used to statistically analyze each design. The DM analysis was chosen because multivariate analysis is less likely than multiple ANOVAs to result in experimentwise Type 1 error; in a typical DM analysis, the original data are transformed into orthogonal variables, hence the subsequent multivariate omnibus *F* test is unaffected by the violation of the multivariate sphericity assumptions (Schutz & Gessaroli, 1987). If the omnibus *F* test was significant, univariate analysis was used as a post-hoc test to determine which variable contributed to the significance. In this case, DM MANOVAs were performed on overall pleasant and unpleasant emotions and tension stress and effort stress scores from the TESI. Significant effects on these grouped measures revealed by MANOVA provided protection for investigatory ANOVAs on the individual variables and *t*-tests to identify specific effects between individual means.

### Results

#### *Biographical Data*

From the sample of 64 participants, only one was single. The remainder were married for an average of 17.8 years and had an average of 1.7 children. Just over 12% had three, 60% had two children and just over 9% had one child. Eleven of the participants (17.2%) had no children. The majority were housewives (62.5%) who did not work outside the home, but of the others, just over 15% were public servants or office workers and 22% were involved in other types of part-time work. Ninety-two percent of their husbands were public servants or office workers.

#### *TESI Emotion and Stress Results*

The mean pre- and post-session scores for all TESI measures for the serious (telic) and hedonistic (paratelic) tennis groups are presented in Table 3. In each case, data analysis involved Profile analysis MANOVA followed by ANOVA techniques and *t*-tests which were used to examine differences between means and interpret effects.

TABLE 3  
*Mean Pre- and Post-Session Emotion Scores for Serious (Telic)  
 and Hedonistic (Paratelic) Groups.*

Variable Name	Pre-session Serious <i>n</i> = 30	Post-session (Telic)	Pre-session Hedonistic	Post-session (Paratelic) <i>n</i> = 14
<i>Pleasant/unpleasant emotions</i>				
Total pleasant (kai kanjyo)	28.37	29.43	28.36	27.00
Total unpleasant (fukai kanjyo)	18.43	14.30	17.00	15.21
<i>Somatic emotions</i>				
Relaxation (relax kan)	4.50	4.70	5.07	4.86
Anxiety (fuan)	2.77	1.93	2.43	2.14
Excitement (kofun)	2.53	3.67	2.14	2.79
Boredom (taikutsu)	2.50	1.87	2.21	1.86
Placidity (heiseisa)	4.20	3.97	4.07	3.64
Anger (ikari)	1.93	1.70	1.71	1.57
Provocativeness (tyousen teki)	2.43	2.60	2.79	2.21
Sullenness (fukigen)	2.03	1.60	2.07	1.79
<i>Transactional emotions</i>				
Pride (hokori)	3.00	2.86	3.17	3.40
Humiliation (kutsujyokukan)	2.21	1.71	2.10	1.73
Modesty (kenkyosa)	3.86	3.07	3.63	3.37
Shame (hazukasisa)	2.50	2.21	2.80	2.17
Gratitude (kansya no nen)	4.57	4.50	4.47	4.33
Resentment (ikidori)	1.93	1.86	2.17	1.63
Virtue (bitokukan)	2.86	3.07	3.43	3.40
Guilt (zaiakukan)	1.93	2.07	2.13	1.67
<i>Tension stress/ effort stress</i>				
Tension external (gaiteki pressure)	3.63	2.57	3.50	2.14
Tension somatic (naiteki pressure)	2.97	2.13	2.86	2.64
Effort external (gaiteki pressure eno doryoku)	3.37	3.13	3.36	2.93
Effort somatic (naitteki pressure eno doryoku)	3.53	3.47	3.93	3.50

### *Inter-Group Differences*

No significant differences between serious (telic) and hedonistic (paratelic) groups were obtained in any of the statistical analyses. This included comparison of the two groups' TESI scores for overall pleasant and unpleasant emotions, somatic and transactional pleasant and unpleasant emotions, and individual emotions, as well as tension stress and effort stress.

### *Intra-Group Changes*

*Total pleasant/unpleasant emotions.* Profile analysis MANOVA was used to determine overall differences in total pleasant/unpleasant emotions. A  $2 \times 2 \times 2$  MANOVA (pleasant/unpleasant emotions  $\times$  telic/paratelic  $\times$  pre-/post-session) showed no significant differences ( $F(1, 42) = 3.67, p = ns$ ,

power = .464). However, a significant effect for pleasant/unpleasant emotions ( $F(1, 42) = 81.25, p < 0.0001, \text{power} = 1.000$ ), and a significant pre/post-session effect ( $F(1, 42) = 4.46, p < 0.05, \text{power} = .539$ ) were obtained. There was also a significant interaction effect for pre/post-session  $\times$  pleasant/unpleasant emotions ( $F(1, 42) = 5.11, p < 0.05, \text{power} = .596$ ).

Two  $2 \times 2$  ANOVAs (telic/paratelic group  $\times$  pre/post-session) were calculated from the total pleasant and total unpleasant emotions scores and the  $F$  values, probability levels and statistical power (at  $\alpha = 0.05$ ) are presented in Table 4. Total pleasant emotions increased pre- to post-session, but not significantly. However, a significant telic/paratelic interaction effect for total unpleasant emotions ( $F(1, 42) = 7.09, p < 0.05, \text{power} = .737$ ) was found.  $t$ -tests were calculated to identify differences between specific means (see Figure 1). The pre- to post-session means for the serious (telic) group were found to decrease significantly ( $t(29) = 3.14, p < .05$ ). Hedonistic (paratelic) group means also decreased, but not significantly ( $t(13) = 1.11, p = ns$ ).

*Somatic emotions (TESI).* The only significant effect obtained from an  $8 \times 2 \times 2$  MANOVA (somatic emotions  $\times$  telic/paratelic group  $\times$  pre/post-session) was a significant interaction effect for total somatic emotions  $\times$  pre/post-session ( $F(7, 294) = 4.56, p < 0.0001, \text{power} = .994$ ). The means for the 8 somatic measures are shown in Figure 2.

Univariate  $2 \times 2$  ANOVAs (telic/paratelic group  $\times$  pre/post-session) were performed on the 8 somatic emotion measures. Table 4 shows the  $F$  values, probability levels and statistical power (at  $\alpha = 0.05$ ) for these analyses. ANOVAs showed no significant telic/paratelic group effects on any individual somatic emotion. However, significant pre- to post-session effects for anxiety, excitement, and boredom were obtained. Anxiety and boredom both decreased significantly ( $F(1, 42) = 5.40, p < 0.05, \text{power} = .619$ ;  $F(1, 42) = 4.56, p < 0.05, \text{power} = .549$  respectively), and excitement increased significantly ( $F(1, 42) = 17.40, p < 0.001, \text{power} = .983$ ), pre- to post-session.  $t$ -tests indicated that these pre- to post-session differences were significant only for the serious (telic) group (anxiety,  $t(29) = 2.85, p < .01$ , boredom  $t(29) = 2.28, p < .05$ , and excitement  $t(29) = -5.07, p < .0001$ ). For the hedonistic (paratelic) group, changes in these three emotions were in the same directions as the serious (telic) group, but failed to reach significance (anxiety,  $t(13) = 1.10, p = ns$ , boredom  $t(13) = .89, p = ns$ , and excitement  $t(13) = -1.60, p = ns$ ).

*Transactional emotions.* The only significant effect revealed by an  $8 \times 2 \times 2$  MANOVA (transactional emotions  $\times$  telic/paratelic group  $\times$  pre/post-session) was for the pre/post-session factor ( $F(1, 42) = 5.84, p < .05, \text{power} = .653$ ). The means for the 8 transactional measures are shown in Figure 3.

Univariate  $2 \times 2$  ANOVAs (telic/paratelic group  $\times$  pre/post-session) were performed on the 8 transactional emotion ratings. Table 4 shows the  $F$  values, probability levels and statistical power (at  $\alpha = 0.05$ ) for these analyses. Significant pre- to post-session effects for humiliation ( $F(1, 42) = 6.48,$

TABLE 4  
*F-Ratio and Statistical Power at  $\alpha=0.05$  for Univariate ANOVAs for Type Effect, Pre-/post-Session, and Interaction Effects*

Variable	Serious (Telic)/ Hedonistic (Paratelic)		Pre-/post-session Effect		Serious (Telic)/ Hedonistic (Paratelic) $\times$ Pre-/ post-session Interaction	
	F Value (d.f.=1,42)	Power	F value (d.f.=1,62)	Power	F Value (d.f.=1,62)	Power
<i>Pleasant/unpleasant emotions</i>						
Total pleasant (kai kanjyo)	0.27	0.051	0.03	0.042	2.37	0.325
Total unpleasant (fukai kanjyo)	0.01	0.039	7.09*	0.737	1.11	0.179
<i>Somatic emotions</i>						
Relaxation (relax kan)	0.52	0.126	0.00	0.037	0.55	0.136
Anxiety (fuan)	0.04	0.042	5.40*	0.619	1.29	0.197
Excitement (kofun)	2.62	0.352	17.4***	0.983	1.33	0.201
Boredom (taikutsu)	0.14	0.053	4.56*	0.549	0.35	0.059
Placidity (heiseisa)	0.22	0.053	2.02	0.284	0.18	0.054
Anger (ikari)	0.30	0.052	0.54	0.133	0.03	0.042
Provocativeness (tyousen teki)	0.00	0.037	1.10	0.178	3.66	0.463
Sullenness (fukigen)	0.14	0.053	2.72	0.364	0.11	0.052
<i>Transactional emotions</i>						
Pride (hokori)	0.56	0.139	0.05	0.044	0.82	0.166
Humiliation (kutsujyokukan)	0.02	0.039	6.48*	0.698	0.15	0.053
Modesty (kenkyosa)	0.01	0.037	9.21**	0.841	2.24	0.309
Shame (hazukasisa)	0.09	0.050	3.46	0.443	0.50	0.114
Gratitude (kansya no nen)	0.06	0.047	0.25	0.052	0.02	0.040
Resentment (ikidori)	0.00	0.036	1.78	0.255	1.04	0.173
Virtue (bitokukan)	1.02	0.172	0.15	0.053	0.28	0.051
Guilt (zaiakukan)	0.08	0.049	0.59	0.149	2.09	0.292
<i>Tension stress/effort stress</i>						
Tension external (gaiteki pressure)	0.49	0.110	19.78***	0.991	0.28	0.051
Tension somatic (naiteki pressure)	0.24	0.052	3.98	0.494	1.39	0.208
Effort external (gaiteki pressure eno doryoku)	0.05	0.045	1.15	0.182	0.10	0.051
Effort somatic (naiteki pressure eno doryoku)	0.17	0.054	0.52	0.125	0.28	0.051

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

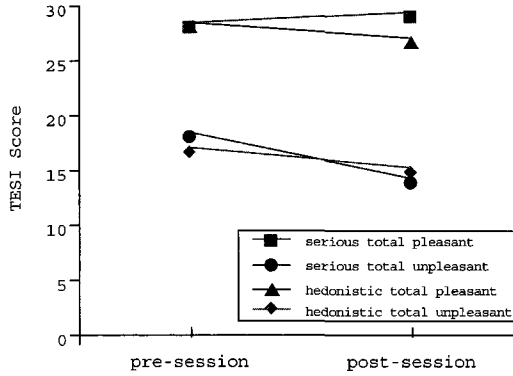


Figure 1. Serious and hedonistic participants' pre- and post-session mean total pleasant and unpleasant emotion scores.

$p < .05$ , power = .698) and modesty ( $F(1, 42) = 9.21, p < .01$ , power = .841) were found.  $t$ -tests indicated that the decrease in humiliation could not be attributed to either serious (telic) ( $t(29) = 1.88, p = ns$ ), or hedonistic (paratelic) group ( $t(13) = 1.84, p = ns$ ), however a  $t$ -test on scores for both groups combined ( $t(43) = 2.61, p < .005$ ) did support the significant result from the ANOVA analysis. For modesty,  $t$ -tests indicated that both groups decreased pre- to post-session. For the serious (telic) group this change was non-significant ( $t(29) = 1.31, p = ns$ ), but for the hedonistic (paratelic) group the decrease was significant ( $t(13) = 3.02, p < .05$ ).

*Tension stress and effort stress.* Profile Analysis MANOVA was used to establish overall differences on the tension stress and effort stress ratings.

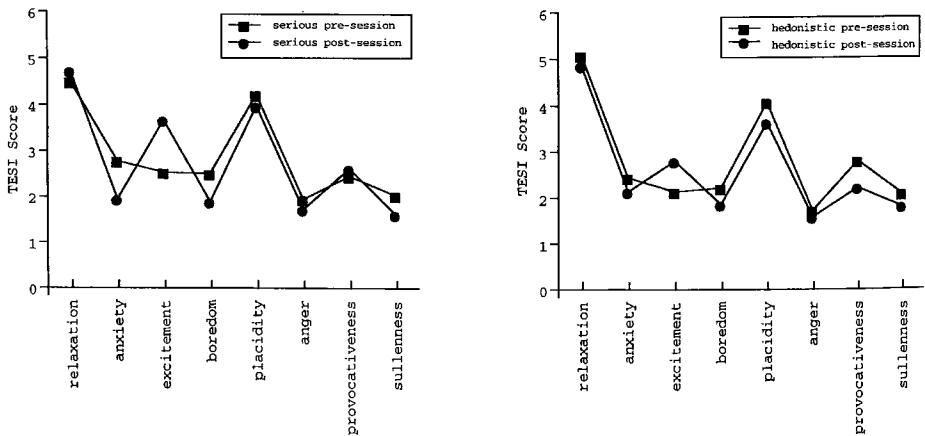


Figure 2. Serious and hedonistic participants' pre- and post-session mean individual somatic emotion scores.

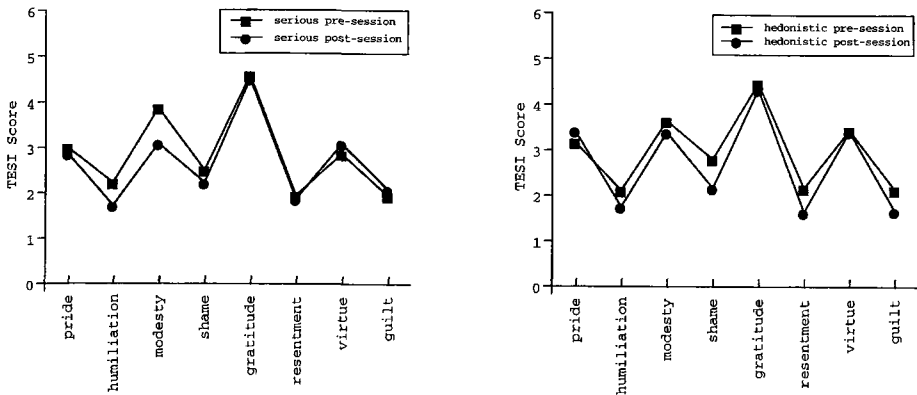


Figure 3. Serious and hedonistic participants' pre- and post-session mean individual transactional emotion scores.

A  $4 \times 2 \times 2$  MANOVA (tension stress and effort stress  $\times$  telic/paratelic  $\times$  pre/post-session) revealed significant effects for the pre/post-session factor ( $F(1, 42) = 6.83, p < .05, \text{power} = .721$ ) where the post-session measures were significantly less than the pre-session measures. Also, a significant tension and effort stress  $\times$  pre-/post-session effect was revealed ( $F(3, 126) = 3.59, p < .05, \text{power} = .780$ ). The means for the 4 measures are shown in Figure 4.

Univariate  $2 \times 2$  ANOVAs (telic/paratelic  $\times$  pre/post-session) were performed on the 4 tension stress and effort stress ratings. The  $F$  values, probability levels and statistical power (at  $\alpha = 0.05$ ) for these analyses are presented in Table 4. There was a significant pre/post-session effect for tension external ( $F(1, 42) = 19.78, p = .0001, \text{power} = .991$ ). From pre- to post-session, both groups experienced significant reductions in tension external

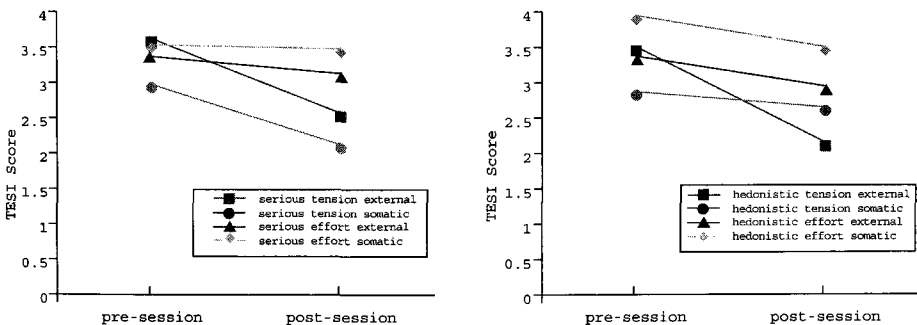


Figure 4. Serious and hedonistic participants' pre- and post-session mean tension and effort stress scores.

(serious (telic)  $t(29) = 3.61, p < .01$ ; hedonistic (paratelic)  $t(13) = 2.79, p < .05$ ).

### Discussion

The majority of the Japanese women in this study were housewives who had been married for some time and many of whom had children. Also, some worked in part-time employment, while 15% had full-time jobs. As most of the women's husbands were white collar employees, it is likely that these women were financially secure and had a relatively comfortable lifestyle. Within this lifestyle, recreational tennis likely played an important role as an opportunity for active leisure in their busy lives.

The importance of individual experience in the women's leisure experience is neatly illustrated by the activity chosen in the present study, where essentially the same activity (i.e., playing tennis) was engaged in by participants for quite different motives. Among their primary reasons for participation were rather serious ones like improving health, taking exercise, weight control, stress relief, or achievement as well as more hedonistic reasons like for fun, or responding to the challenge of the activity. Thus, participants could be grouped on the basis of their primary reasons for participation into serious (telic) and hedonistic (paratelic) groups. This division of the participants produced some interesting findings in terms of an absence of intergroup differences and intra-group changes in emotion and stress responses.

Reversal theory proved to be a useful means of examining leisure participation in the present study. Hypothesis 1 was supported by the absence of significant differences between serious (telic) and hedonistic (paratelic) groups in any of the statistical analyses of TESI emotion groupings and stress scores. There were no important differences in the Japanese women's experience between those who participated in recreational tennis for hedonistic (paratelic) reasons and those who participated for serious (telic) reasons. This result suggests that the hedonistic (paratelic) leisure experience is not necessarily more pleasurable than the serious (telic) leisure experience. This is contrary to Stebbins' (1997) view that casual leisure is more fun to do than serious leisure (keeping in mind that there are also some differences between reversal theory and Stebbins' (1997) approach).

The results did, however, reveal a number of important intra-group changes. For example, with regard to overall pleasant emotions, serious (telic) participants had a similar experience to the hedonistic (paratelic) participants in that both groups' scores did increase, but not significantly pre- to post-session. When individual emotions were examined it was found that one pleasant somatic emotion, excitement, increased for both groups across the activity, but only significantly for the serious (telic) group. While not sufficient to influence the total score for pleasant emotions, this result is interesting. It illustrates that excitement, a pleasant somatic emotion concerned with pleasant high arousal and perhaps more usually associated with hedonistic (paratelic) leisure activities can also contribute to participants'

pleasurable experience of serious (telic) leisure participants. It may be that, while the general participation motives of this group were serious or telic in nature, when they actually got involved in the tennis session they were in (or reversed to) the paratelic state. This would explain the considerable pre- to post-session increases in excitement obtained with this group. This possibility, and its implications for future reversal theory research is returned to below.

Serious (telic) and hedonistic (paratelic) leisure groups had a different pattern of experience with regard to unpleasant emotions. Both groups experienced a reduction in levels of total unpleasant emotions pre- to post-session, but only the scores for the telic group decreased significantly. Given these results (and the lack of significant changes of total pleasant emotions), hypothesis 2 was only partially supported. The decrease in the serious (telic) group's total score across the activity was influenced by significant decreases in the individual unpleasant emotions, anxiety and boredom, positively influencing hedonic tone and overall affect. Although the changes in anxiety and boredom pre- to post-session were in the same direction as those for the serious (telic) group, they failed to reach significance for the hedonistic (paratelic) group. These findings support hypothesis 3, which addressed the prominence of total pleasant and unpleasant somatic emotions in any pre- to post-session change. According to reversal theory, a person's overall level of hedonic tone, or experienced pleasure, in any activity can be improved by increases in pleasant emotions or decreases in unpleasant emotions, or both. The serious (telic) group enjoyed an increase in excitement, meaning that hedonic tone and affect would have been increased to some extent. However, while the hedonic tone of the serious (telic) group would have been further enhanced by decreases in anxiety and boredom, this did not occur for the hedonistic (paratelic) leisure group.

As yet, no mention has been made of transactional emotions and, as the tennis activity was undertaken in groups, some consideration should be given to those TESI emotions concerned with interactions with other people such as, pride, gratitude and humiliation. Perhaps surprisingly, however, no important results for total scores on pleasant or unpleasant transactional emotions were found, but there was one reliable result which featured the pleasant individual transactional emotion, modesty. The hedonistic (paratelic) group became significantly less modest across the leisure activity, while the serious (telic) group's scores also decreased, but not significantly. Why this change in modesty should have occurred is not known, but it may have been a consequence of successful performance or play. It would appear that, despite the decrease in modesty, changes in total transactional emotions pre- to post-session did not play an important role in this study and hypothesis 4 must be rejected.

Furthermore, reversal theory also argues that the experience of unpleasant emotions can be stressful and consequently any change in unpleasant emotions should have been replicated in leisure respondents' stress scores. In fact, TESI stress and effort item results did largely parallel the results



obtained from unpleasant emotion items. However, both groups experienced significant reductions only in tension stress arising from external, environmental demands. Therefore, hypothesis 2 was again only partially supported.

There is little doubt that the serious (telic) group's leisure experience was a pleasant one, characterized by an increase in excitement and decreases in unpleasant emotions induced by the activity. Participating in tennis as a leisure activity had a clear therapeutic effect for this group and may have been part of a planned strategy for the self-regulation of mood or affect (Morris & Reilly, 1987; Thayer, Newman, & McClain, 1994). For the hedonistic (paratelic) group the pattern is less clear. Changes in this group's scores, while generally in the same direction as those of the serious (telic) group, on several occasions failed to reach significance. Thus, while the hedonistic (paratelic) group's experience was unlikely to have been an unpleasant one, for them, participating in the tennis activity may have been less rewarding in terms of improved hedonic tone and affect than the serious (telic) group's experience. Could it have been that, on this occasion, the tennis activity was just not hedonistic enough and failed to provide the immediate sensation, increases in arousal and spontaneous fun that the hedonistic group sought? If so, this may be why changes in emotion and stress failed to reach significance.

### Concluding Comments

Some limitations of the current study need to be kept in mind. This study, in which participants' primary reason for participation was used to divide groups into serious (telic) and hedonistic (paratelic) groups, can be seen as a preliminary step in reversal theory-based leisure research. Other research designs could be utilized. For example, while, pre- and post-testing is an acceptable quasi-experimental research design for identifying possible emotional changes in a field setting (e.g., Cook & Campbell, 1979), some consideration should be given to the time period concerned. In leisure activities which endure over relatively long periods, it may be desirable to take additional measures of emotion and stress during the actual activity. This is best achieved where there are natural breaks in the activity which could facilitate additional testing without interrupting the activity or becoming too intrusive for the participants. Indeed, such a strategy could be advantageous for reversal theory studies because, rather than concentrating exclusively on emotions and stress, studies might also attempt to identify reversals (using metamotivational state measures), both across and during the leisure activity in addition to any emotion or stress changes that accompany them.

This study has adapted reversal theory to the study of leisure motivation. An important portion of the theory has been applied and found useful in adding to the understanding of participation motivation. Although the scope of the present research study has been limited (in that only telic and paratelic motives were examined), the study of psychological aspects of leisure participation could benefit from a wider application of reversal theory. In

addition to providing an alternative approach and a challenge to some other explanations of leisure motivation (e.g., Stebbins' (1997) conceptualizations of serious and casual forms of leisure), reversal theory can provide a more sophisticated, broader approach to leisure motivation. This, in turn, can lead to a deeper understanding of the different psychological experiences that can be found among participants in different forms of leisure. Further reversal theory-based research, which goes beyond the parameters investigated in the present study, and which explores other contrasting forms of leisure, might well prove beneficial in this regard. There are numerous opportunities to undertake reversal theory-based research in recreational sport, but many more in the wider context of leisure activities in general.

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