

## Development of a "Type C" Inventory: Cross-Cultural Applications

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(Received March 3, 1999; Accepted March 28, 1999)

The authors are preparing for cross-cultural studies of immunosuppressive behaviors and emotions, commonly called "Type C," in both healthy persons and in patients with cancer. To this end, validity and reliability of a Type C Personality Inventory were assessed in a sample of 128 healthy volunteers. Reliability of the instrument was supported by moderate to high Cronbach alpha coefficients. Acceptable validity was evident by relatively high correlations of the instrument's subscales with other, standardized, psychological tests.

**Keywords :** Type C personality, Cancer, Cronbach alpha coefficient

### INTRODUCTION

It is becoming increasingly clear that what was thought to be predominantly physical illnesses, such as coronary heart disease (CHD), are significantly influenced in both their onset and course by psychological factors [1]. For example, patients with CHD frequently exhibit "Type A" behaviors and emotions [2, 3]. Emotions of particular importance for CHD patients are hostility and anger [4, 5]. In terms of persons with cancer, Temoshok pointed out that they were often characterized by suppression of their emotions, particularly anger, and tended to show self-sacrificing behaviors along with passivity [6]. She labeled these emotions and behaviors "Type C" - in contrast to Type A descriptions of CHD patients' typical behaviors and emotions.

Rahe and Solomon later explored characteristic behaviors and emotions of patients with immunosuppressive diseases, including cancer [7]. They composed an "Immunosuppressive Questionnaire" which is currently being evaluated in the United States [7]. Researchers, at Tokai University in Japan, translated five major subscales of this ques-

tionnaire to begin cross-cultural investigations between Japan and the U.S. This translation, called the Type C Personality Inventory (TCPI), is described in this report, along with results from reliability and validity testing.

### METHODS

#### *Derivation of the TCPI*

The Rahe and Solomon questionnaire begins with 15 dichotomous (yes or no) questions regarding a person's family and community relationships. The questionnaire then has five major subscales, composed of 5 to 7 questions each, which are rated on a four point scale (0, 1, 2, and 3 points). These five subscales are: Social (Conflict Avoidance), Emotions (Suppression of Emotions), Service (Over-giving and Self-sacrifice), Assertion (Lack of Assertiveness), and Power (Hopeless and Helpless). The final part of the Rahe and Solomon questionnaire asks a person to rate themselves, on a 0 to 3 point scale, for 30 adjectives. Adjective responses are scored for their degree of immunosuppressive traits, e.g. "rarely or never dominant" is scored 3. A total adjective score is then calculated. The authors of this report

selected the five major subscales noted above for the TCPI. These subscales, and their respective questions, are listed in Table 1.

### ***Reliability and Validity of the TCPI***

The five subscales which comprise the

TCPI were examined for their reliability and validity with the sample of 128 (31 male and 97 female) healthy volunteers working at the general hospitals of Kanagawa Prefecture, Japan. The mean age of the entire sample was 40.6 years, with a standard deviation of

**Table 1** Final Version of the TCPI

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**Social:**

1. How frequently do you get into arguments ?
2. Do you tend to agree with others, rather than assert yourself ?
3. How easily can you delegate work to others ?
4. Do you avoid making difficult decisions ?
5. Do you try to avoid conflicts with others ?
6. Are you courteous, even to disagreeable persons ?
7. Are you careful not to hurt other peoples' feelings ?

**Emotions:**

8. How readily can you tell when someone else is angry ?
9. How easily can you tell when you are angry (very annoyed) ?
10. Do you tend to get angry with people who delay you (Such as slow drivers in front of you in traffic) ?
11. When you're angry, do you "blow up" or "tell someone off" ?
12. When you lose your temper, do you feel guilty about it later ?
13. When you feel unhappy, do you tell others how you feel ?

**Service:**

14. How regularly do you give to charity ?
15. How often do you go out of your way to help others ?
16. How often do you ask others for help ?
17. Do you put other persons' wishes before your own ?
18. How easily can you refuse a request that you really prefer not to do ?

**Assertion:**

19. How frequently do you "stand up" for yourself ?
20. If you are ridiculed, do you retaliate ?
21. Are you able to challenge persons in authority ?
22. Do you easily let others know what you really want ?
23. Do others take advantage of your generosity ?

**Power:**

24. How often does life come out the way you would like it to ?
  25. Do you feel in control over people and events in your life ?
  26. Do you believe that illness strikes no matter what you do ?
  27. How frequently are you happy and contented ?
  28. Do you view obstacles as a challenge rather than a threat ?
  29. Do you feel helpless or hopeless about life's difficulties ?
  30. Are you hopeful and optimistic about the future ?
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14.9. Informed consent was obtained prior to the administration of any tests.

Inter-item correlations and estimates of internal consistency (Cronbach alpha) were conducted for the five subscales, according to the methodology endorsed by Bagby, *et al* [8, 9]. Cronbach alpha coefficients were calculated using the variance for each question along with the variance for the subscale's total score.

The standardized psychological tests used to examine criterion-related validity were the Japanese version of the Tokai Type A Screening Test (TTST), the Depression Related Personality Trait Scale (DRP), and the Eysenck Personality Questionnaire (EPQ). The TTST was originally developed to measure Type A traits among Japanese [10]. The DRP is a self-report assessment of depression [11]. The EPQ is a 90 item instrument designed to evaluate four personality factors: psychoticism, extraversion, neuroticism, and a lie scale for untruthfulness [12].

Pearson product-moment correlations were used for these estimates of criterion-related validity. Statistical analyses were performed using STATISTICA software (Japanese version) for Macintosh. Differences were considered statistically significant at probability levels of 0.05 or less.

### Test-retest

The TCPI was administered on two separate occasions, which were approximately two weeks apart. Test-retest correlations were determined comparing the subjects total scores for the second compared to the first attempt.

## RESULTS

Reliability estimates for internal consistency, using Cronbach alpha coefficients, were 0.64 for Social, 0.78 for Emotions, 0.66 for Service, 0.84 for Assertion, and 0.67 for Power.

As not included in Tables, mean scores on six subscales of the TCPI did not differ significantly between the two administrations. In other words, a test-retest correlation for the second administration of the TCPI compared to the first was significant.

Concurrent validity, as reflected in the Pearson correlations run between the five TCPI subscales with the TTST, DRP, and the four subscales of the EPQ, are presented in Table 2. Significant correlations were seen for Social (Conflict Avoidance) and the DRP and the EPQ-N (Neuroticism). Emotions (Suppression of Emotions) was significantly and negatively correlated with EPQ-N. Service (Over-giving and Self-sacrifice) was significantly correlated with the DRP. Assertion (Lack of Assertiveness) was significantly correlated with EPQ-L (Lie, or Untruthfulness). Power was significantly and negatively correlated with the TTST and the EPQ-E (Extraversion).

## DISCUSSION

The reliability of the TCPI, as reflected by estimates of internal consistency, was supported by relatively high Cronbach alpha coefficients. Test-retest results also indicated acceptable reliability. The validity of this instrument, as assessed by concurrent correlations with the standardized psychological tests, was also seen to be acceptable. Thus,

**Table 2** Correlations of the TCPI to the TTST, DRP, and EPQ

|              | TTST   | DRP    | EPQ-N   | EPQ-E  | EPO-P | EPQ-L |
|--------------|--------|--------|---------|--------|-------|-------|
| TCPI         |        |        |         |        |       |       |
| 1) Social    | -.196  | .551** | .444**  | -.059  | .074  | -.168 |
| 2) Emotions  | -.081  | -.128  | -.499** | -.105  | -.043 | .152  |
| 3) Service   | -.079  | .444** | -.139   | .130   | -.150 | .131  |
| 4) Assertion | -.051  | .071   | -.105   | -.020  | -.219 | .330* |
| 5) Power     | -.328* | -.200  | .318*   | -.400* | .217  | -.040 |

Results are shown in Pearson's correlation coefficient  
\* $p < .05$ , \*\* $p < .01$

this instrument appeared to give satisfactory results when used with a sample of healthy volunteers.

Areas for future examination remain. First, subjects in the present study did not include persons with cancer. As the TCPI purports to measure Type C behaviors and emotions, it is vital to collect a sample of individuals with major cancers - such as breast, colon, lung, and prostate. Secondly, a larger sample of healthy males would allow for analyses of possible gender differences on the TCPI. Thirdly, the authors found only one significant negative relationship between Type A behavior and Type C as measured by the TCPI. From the literature, more was expected [12]. However, a recent study at this laboratory found that Type C persons may show high levels of hostility and anger - major components of Type A [13]. Finally, as the TCPI and the five major subscales of the Rahe and Solomon questionnaire are identical, the authors are in a position to access cross-cultural differences between cancer patients, as well as healthy individuals, from Japan and the United States.

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