

# Resilience and Hardiness in Repatriated Vietnam-Era Prisoners of War

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## INTRODUCTION

To date there has been no direct measurement of the resilience of Vietnam era repatriated Prisoners of War (RPWs). Previous research conducted by the RE Mitchell Center for Prisoner of War Studies (REMC) used presence or absence of post-repatriation psychiatric illness as a proxy measure of resilience, but did not administer any specific scales to directly measure this construct. The purpose of this brief study was to directly measure psychological resilience in a group of Vietnam era RPWs and identify those RPWs who self-identify as resilient. This score distribution may then be used to establish subgroups of RPWs within this sample who are most resilient and least resilient, as well as an intermediate group, in order to further study the relationship between psychological resilience and such constructs as physical or psychological health. It is also anticipated that these current psychological resilience scores and groupings will be compared with both current neurobiological resilience, as well as with captivity-related predictors of current status.

Although defined in various ways, psychological resilience refers to the ability to “bounce back” from adversity, adapt to various stressors, and bend but not break. Recent efforts to identify factors that comprise resilience have resulted in at least two overlapping lists. Southwick and Charney (2012) developed a list of ten factors after conducting extensive interviews with individuals who had demonstrated what was felt to be effective coping following high levels of stress. These coping mechanisms, which the authors referred to as “resilience factors,” included the following: realistic optimism, facing fear directly, having a moral compass, drawing on faith (religion and spirituality), utilizing social support, fostering resilient role models, maintaining physical fitness, learning cognitive and emotional flexibility, and having a growth-promoting sense of meaning and purpose in life. From a slightly different perspective, Reivich and Shatte (2002) identified seven research-based abilities associated with resilience that are measureable, trainable and improvable. From this perspective, an individual’s “Resilience Quotient” is comprised of optimism, emotional regulation, impulse control, empathy, causal analysis, self-efficacy, and reaching out (social support). Although the specific components of these two ways of defining the components of resilience differ slightly, there are also substantial areas of agreement. Individuals who have mastered these skills or otherwise demonstrate these dispositional traits, and are able to apply them in response to stressors or hassles, will predictably have an easier time “bouncing back” than individuals who are not gifted in those ways.

The personality construct of Hardiness, as defined by Maddi and Khoshaba (1994), may overlap and correlate with resilience, or otherwise mediate the relationship between the various predictors of resilience. Research has demonstrated the principle “hardy attitudes” of commitment, control, and challenge supplement skills associated with coping styles, social interactions and health-promoting

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practices. Hardy individuals have been shown to be conscientious and extroverted, with fewer signs of overt psychopathology and a greater ability to derive benefits from stressful life events. Hardiness has even been shown to directly moderate the long-term changes associated with captivity/torture in a sample of Israeli RPWs (Waysman et. al., 2001). In addition, dispositional hardiness and dispositional optimism, although moderately correlated, may differentially mediate the relationship between coping style and the effective coping with stressful situations (Maddi and Hightower, 1999).

## **METHOD**

**Subjects:** One hundred twenty-eight Vietnam-era RPWs were evaluated at the REMC between March 2011 and April 2012. The average RPW age at the time of this evaluation was 71.9 years (+/- 5.6) and their age at capture was 29.1 years (+/- 4.8). These RPWs were held captive for an average of 51 months (+/- 32.4) and spent an average of 26.5 weeks (+/- 36.4) in solitary confinement. Using a torture scale that was administered at the time of repatriation, as well as on two additional occasions (see Table 1), their average torture severity rating was 30.6 (+/- 12.6) using a 25-item (0 to 75) scale and their average weight loss during captivity was 25.1% (+/- 11.3). The vast majority of these RPWs were Caucasian (97.7%), married (93%) and officers (93%). The distribution by military service is shown in Table 2. Approximately 61% of these RPWs have not experienced any psychiatric illness post-repatriation, but 76% of those with a history of psychiatric illness have been diagnosed with PTSD (see Table 3).

Two measures of psychological resilience and one measure of hardiness were completed by the RPWs as part of an extensive two-day medical and psychological examination that was both similar to their previous annual REMC evaluations and offered additional assessments as approved by a US Navy Institutional Review Board. Each RPW received funding for their travel and per diem costs, and each consented to participate in both the continued medical follow-up program and this unique project.

**Instruments:** The Bond Ego Resilience Scale (ER89; Block and Kremen, 1996) is a 14-item Likert-type scale, with each item rating from 1 "Does not apply at all" to 4 "Applies very strongly." Possible scores therefore range from 14 to 56. The published internal consistency of the Bond Ego Resilience Scale is 0.76 as measured by Chronbach's alpha; and the internal consistency within the current sample was 0.78. As originally developed, high scores on this scale were associated with relatively enduring positive affect, openness to experience, motivational control, and resourceful adaptation.

The Connor-Davidson Resilience Scale (CD-RISC10; Campbell-Sills and Stein, 2007) is a 10-item Likert-type scale, with each item rating from 0 "Not at all true" to 4 "True nearly all the time." Possible scores therefore range from 0 to 40. The published internal consistency of the Connor-Davidson Resilience Scale is 0.85 as measured by Chronbach's alpha, and the internal consistency within the current sample was 0.86. As originally developed, this scale was designed to identify those individuals who were most likely to "bounce back" from physical or emotional difficulties as a result of successful stress-coping abilities. During test development, items were selected in such a way as to reflect

hardiness, action orientation, self-confidence, adaptability to change, humor, and secure/stable emotional bonds.

The Personal Views Survey, revised third edition (PVS-IIIR; Maddi et al., 2006) is an 18-item Likert-type scale, with each item rating from 0 “Not at all true” to 3 “Very true”, with some items being reverse scored. Possible scores therefore range from 0 to 54. In addition to the Total Score, separate scores are available for six-item subscales associated with Commitment, Control and Challenge. The published internal consistency of the Personal Views Survey is 0.80 as measured by Chronbach’s alpha; and, the internal consistency within the current sample was 0.67. As originally developed hardiness was felt to be separate from negative affectivity and neuroticism in predicting adaptability.

## RESULTS

**Bond Ego Resilience Scale (ER89).** RPW scores on the ER89 (Table 4) ranged from 33 through 56 (mean = 46.1; standard deviation = 5.0), while the average scores on the individual items ranged from 3.0 to 3.7. Despite the skewed distribution of scores on the individual items, scores of 1, although rare, were recorded on seven of the fourteen items. After evaluating the distribution of RPW scores, the following categorical distinctions were made: Least Resilient:  $n = 37$ , scores from 33 through 43; Mid Resilient:  $n = 55$ , scores from 44 through 49; Most Resilient:  $n = 37$ , scores from 50 through 56.

**Connor-Davidson Resilience Scale (CD-RISC10).** RPW scores on the CD-RISC10 (Table 5) ranged from 22 to 43 (mean = 34.2; standard deviation = 5.0), while the average scores on the individual items ranged from 3.1 to 3.7. Despite the skewed distribution of scores on the individual items, and there were no scores of 0, scores of 1, although rare, were recorded on six of the ten items. After evaluating the distribution of RPW scores, the following categorical distinctions were made: Least Resilient:  $n = 37$ , scores from 22 through 31; Mid Resilient:  $n = 54$ , scores from 32 through 47; Most Resilient:  $n = 37$ , scores from 38 through 43.

**Personal Views Survey, revised third edition (PVS-IIIR).** RPW Total scores on the PVS-IIIR (Table 6) ranged from 23 to 53 (mean = 39.5; standard deviation = 5.9), while the average scores on the Commitment, Control and Challenge were 14.1 (+/- 2.3), 13.8 (+/- 2.0) and 11.6 (+/- 2.8), respectively. After evaluating the distribution of RPW scores, the following categorical distinctions were made: Least Hardy:  $n = 43$ , scores from 23 through 37; Mid Hardy:  $n = 45$ , scores from 38 through 42; Most Hardy:  $n = 40$ , scores from 43 through 53. The three subscales were highly inter-correlated: Commitment/Control,  $r = 0.498$ ; Commitment/Challenge,  $r = .560$ ; and Control/Challenge,  $r = 0.463$ .

**Relationships between Resilience and Hardiness Measures.** As shown in Table 7, the PVS-IIIR was highly correlated with each resilience measure (0.594 with ER89 and 0.577 with CDRISC10). Although the correlation between the two resilience measures was also high ( $r = 0.643$ ), this relationship was not mediated by scores on the hardiness measure (partial correlation between ER89 and CD-RISC10 controlling for PVS-IIIR:  $r = 0.458$ ). Seventeen RPWs were in the “Most Resilient” group on all three scales and another seventeen RPWs were in the “Least Resilient” group on all three scales.

Table 7 also shows the results of a Principal Components Analysis using the two resilience measures (ER89 and CD-RISC10) and the hardiness measure (PVSIII-R). One principal component with an eigenvalue greater than one (in bold in Table 7) explained 73.67% of the shared variance and resulted in a component matrix with nearly identical loadings for all three variables. Scores on this principal component ranged from -2.46 to 2.04 (Mean = 0.00, Standard Deviation = 1.00) and the correlation between the resilience principal component (ResPC) ranged from 0.839 to 0.871 (Table 8). After evaluating the distribution of RPW ResPC scores, the following categorical distinctions were made: Least Hardy: n = 43, scores from -2.46 through -0.42; Mid Hardy: n = 42, scores from -0.38 through 0.47; Most Hardy: n = 43, scores from 0.48 through 2.04.

## DISCUSSION

There was an adequate distribution of scores on the two resilience measures and the hardiness measure, and it was possible to establish adequate separation into Most-, Mid-, and Least-Resilient groups using each measure. Each of the three total score distributions were slightly skewed and there were few “unfavorable” scores at the individual item level. The individual scales demonstrated adequate internal consistency as measured by Chronbach’s Alpha and there was considerable correlation between the three scales. In addition, the three PVS-IIIR subscales were highly correlated.

Given the high degree of scale inter-correlation, it is not surprising the results of the Principal Component Analysis revealed only one component that accounted for a substantial portion of the variance at the scale level. Very little variance was lost by going from the individual scales to the principal component score. Correlations between the individual scales and the combined scale were slightly higher for the principal component score than for the simple sum of the three scales; and, the distribution of principal component scores was less skewed than other distributions. It was also possible to obtain an adequate separation into Most-, Mid-, and Least-Resilient groups using the principal component score.

These results suggest the resilience principal component score (ResPC) is a parsimonious and useful way to describe current RPW psychological resilience and should be used for most analytic purposes, whether at the continuous or categorical level, within this sample. We are unaware of any previous attempt to combine these scales using this approach. That said, the individual scales must also be used on their own in instances where comparisons between RPW scores and scores from the general population are required, as well as in those instances where previous research has demonstrated the significant concurrent or predictive validity of original resilience/hardiness scores.

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**Table 1**  
**Demographics**

| Variable                          | n   | Median | Mean | Std Dev |
|-----------------------------------|-----|--------|------|---------|
| Current Age                       | 128 | 71.0   | 71.9 | 5.6     |
| Age at Capture                    | 128 | 28.2   | 29.1 | 4.8     |
| Captivity (months)                | 128 | 65.5   | 51.0 | 32.4    |
| Solitary (weeks)                  | 128 | 10.5   | 26.5 | 36.4    |
| IMEF Torture Scale                | 110 | 30.5   | 30.6 | 12.6    |
| 1st REMC Torture Scale            | 125 | 30.0   | 28.9 | 10.9    |
| Current Torture Scale             | 128 | 28.0   | 26.8 | 11.7    |
| Percent Weight Loss (est)         | 128 | 25.0   | 25.1 | 11.3    |
| Repatriation Sleep Difficulties   | 113 | 0.0    | 0.4  | 0.9     |
| Medical Problems During Captivity | 95  | 8.0    | 8.0  | 5.3     |
| Current Education (years)         | 128 | 17.0   | 18.0 | 1.6     |

**Table 2**  
**Demographics**

| <b>Service</b>        | <b>n</b> | <b>Percent</b> |
|-----------------------|----------|----------------|
| USN                   | 55       | 43.0           |
| USAF                  | 60       | 46.9           |
| USA                   | 13       | 10.2           |
| <b>Rank</b>           | <b>n</b> | <b>Percent</b> |
| Officer               | 119      | 93.0           |
| Enlisted              | 8        | 6.3            |
| Civilian              | 1        | 0.7            |
| <b>Ethnicity</b>      | <b>n</b> | <b>Percent</b> |
| Caucasian             | 125      | 97.7           |
| Afr Amer              | 2        | 1.6            |
| Asian Pac             | 1        | 0.7            |
| <b>Marital Status</b> | <b>n</b> | <b>Percent</b> |
| Single                | 3        | 2.3            |
| Married               | 119      | 93.0           |
| Divorced              | 5        | 3.9            |
| Widowed               | 1        | 0.8            |

**Table 3**  
**Demographics**

| <b>PTSD Hx</b>       |           | <b>n</b> | <b>Percent</b> |
|----------------------|-----------|----------|----------------|
|                      | No        | 90       | 70.3           |
|                      | Yes       | 38       | 29.7           |
| <b>Any Psych Dx</b>  |           | <b>n</b> | <b>Percent</b> |
|                      | No        | 78       | 60.9           |
|                      | Yes       | 50       | 39.1           |
| <b>ONR1 Optimism</b> |           | <b>n</b> | <b>Percent</b> |
|                      | Pessimist | 25       | 28.1           |
|                      | Middle    | 34       | 38.2           |
|                      | Optimism  | 30       | 33.7           |

**Table 4**  
**Bond Ego Resilience**  
**(ER89)**

| <b>Item #</b> | <b>Median</b> | <b>Mean</b> | <b>Std Dev</b> |              |
|---------------|---------------|-------------|----------------|--------------|
| 1             | 4.0           | 3.5         | 0.5            |              |
| 2             | 4.0           | 3.7         | 0.6            |              |
| 3             | 3.0           | 3.1         | 0.7            |              |
| 4             | 3.0           | 3.4         | 0.6            |              |
| 5             | 3.0           | 3.1         | 0.9            |              |
| 6             | 3.0           | 3.1         | 0.8            |              |
| 7             | 3.0           | 3.0         | 0.9            |              |
| 8             | 3.0           | 3.2         | 0.8            |              |
| 9             | 3.0           | 3.4         | 0.6            |              |
| 10            | 3.0           | 3.3         | 0.6            |              |
| 11            | 3.0           | 3.2         | 0.7            |              |
| 12            | 4.0           | 3.4         | 0.7            |              |
| 13            | 4.0           | 3.5         | 0.6            |              |
| 14            | 3.0           | 3.1         | 0.7            |              |
| <b>Scale</b>  | <b>Median</b> | <b>Mean</b> | <b>Std Dev</b> | <b>Alpha</b> |
| Total         | 46.5          | 46.1        | 5.0            | 0.78         |

**Table 5**  
**Connor-Davidson**  
**Resilience Scale**  
**(CD-RISC10)**

| <b>Item #</b> | <b>Median</b> | <b>Mean</b> | <b>Std Dev</b> |              |
|---------------|---------------|-------------|----------------|--------------|
| 1             | 3.0           | 3.3         | 0.7            |              |
| 2             | 4.0           | 3.4         | 0.7            |              |
| 3             | 4.0           | 3.5         | 0.7            |              |
| 4             | 3.0           | 3.1         | 0.8            |              |
| 5             | 4.0           | 3.7         | 0.5            |              |
| 6             | 3.0           | 3.4         | 0.6            |              |
| 7             | 3.0           | 3.4         | 0.6            |              |
| 8             | 3.0           | 3.2         | 0.8            |              |
| 9             | 4.0           | 3.5         | 0.6            |              |
| 10            | 3.5           | 3.4         | 0.7            |              |
| <b>Scale</b>  | <b>Median</b> | <b>Mean</b> | <b>Std Dev</b> | <b>Alpha</b> |
| Total         | 35.0          | 34.2        | 4.7            | 0.86         |

**Table 6**  
**Personal Views Survey**  
**(PVS-IIIR)**

| <b>Item #</b> | <b>Median</b>  | <b>Mean</b>    | <b>Std Dev</b>   |              |
|---------------|----------------|----------------|------------------|--------------|
| 1             | 2.0            | 1.8            | 0.8              |              |
| 2             | 1.0            | 1.2            | 0.8              |              |
| 3             | 2.0            | 2.0            | 0.7              |              |
| 4             | 0.0            | 0.3            | 0.7              |              |
| 5             | 1.0            | 0.7            | 0.8              |              |
| 6             | 2.0            | 1.8            | 0.8              |              |
| 7             | 0.0            | 0.2            | 0.4              |              |
| 8             | 2.0            | 1.8            | 0.8              |              |
| 9             | 2.0            | 1.8            | 0.7              |              |
| 10            | 0.0            | 0.1            | 0.4              |              |
| 11            | 2.5            | 2.4            | 0.6              |              |
| 12            | 0.0            | 0.5            | 0.6              |              |
| 13            | 1.0            | 0.8            | 0.7              |              |
| 14            | 2.0            | 1.9            | 0.9              |              |
| 15            | 0.0            | 0.3            | 0.5              |              |
| 16            | 1.0            | 1.1            | 0.8              |              |
| 17            | 2.0            | 2.0            | 0.8              |              |
| 18            | 0.0            | 0.3            | 0.6              |              |
| <b>Factor</b> | <b>Median</b>  | <b>Mean</b>    | <b>Std Dev</b>   |              |
| Commitment    | 14.0           | 14.1           | 2.3              |              |
| Control       | 14.0           | 13.8           | 2.0              |              |
| Challenge     | 12.0           | 11.6           | 2.8              |              |
| <b>Factor</b> | <b>Commit.</b> | <b>Control</b> | <b>Challenge</b> |              |
| Commitment    | 1.000          | 0.498          | 0.560            |              |
| Control       | 0.498          | 1.000          | 0.463            |              |
| Challenge     | 0.560          | 0.463          | 1.000            |              |
| <b>Scale</b>  | <b>Median</b>  | <b>Mean</b>    | <b>Std Dev</b>   | <b>Alpha</b> |
| Total         | 39.5           | 39.5           | 5.9              | 0.67         |

**Table 7  
Resilience  
Scales**

**Correlations**

|               | <b>PVS-IIR</b> | <b>ER89</b> | <b>CD-<br/>RISC10</b> |
|---------------|----------------|-------------|-----------------------|
| PVS-IIR       | 1.000          | 0.594       | 0.577                 |
| ER89          | 0.594          | 1.000       | 0.643                 |
| CD-<br>RISC10 | 0.577          | 0.643       | 1.000                 |

**Principal Components**

|          | <b>Initial Eigenvalues</b> |              |              | <b>Extraction SS Loadings</b> |              |              |
|----------|----------------------------|--------------|--------------|-------------------------------|--------------|--------------|
|          | Total                      | % of Var     | Cumm %       | Total                         | % of Var     | Cumm %       |
| <b>1</b> | <b>2.210</b>               | <b>73.67</b> | <b>73.67</b> | <b>2.21</b>                   | <b>73.67</b> | <b>73.67</b> |
| 2        | 0.435                      | 14.49        | 88.16        |                               |              |              |
| 3        | 0.355                      | 11.84        | 100.00       |                               |              |              |

**Component Matrix**

|               |       |
|---------------|-------|
| PVS-IIR       | 0.839 |
| ER89          | 0.871 |
| CD-<br>RISC10 | 0.864 |

**Sum of the Three Group Ratings**

| <b>Sum</b> | <b>Frequency</b> |  |
|------------|------------------|--|
| 0          | 17               | all three rankings in the "Least Resilient" category |
| 1          | 14               |  |
| 2          | 26               |  |
| 3          | 21               |  |
| 4          | 16               |  |
| 5          | 17               |  |
| 6          | 17               | all three rankings in the "Most Resilient" category  |

**Table 8**  
**Resilience Principal**  
**Component Scores (ResPC)**

| <b>Scale</b>        | <b>Median</b> | <b>Mean</b>          | <b>Std Dev</b>      | <b>Alpha</b> |            |
|---------------------|---------------|----------------------|---------------------|--------------|------------|
| ResPC               | 0.03          | 0.00                 | 1.00                | 0.86         | 43 items   |
| <b>Correlations</b> |               |                      |                     |              |            |
|                     | <b>Scale</b>  | <b>sum of totals</b> | <b>ResPC</b>        |              |            |
|                     | ER89          | 0.862                | 0.871               |              |            |
|                     | SCD-          |                      |                     |              |            |
|                     | RISC10        | 0.846                | 0.864               |              |            |
|                     | PVS-IIIR      | 0.865                | 0.839               |              |            |
| <b>Oneway ANOVA</b> |               |                      | F = 254.82 (2,125), |              |            |
| <b>Using ResPC</b>  |               |                      | p < .001            |              |            |
| <b>Group</b>        | <b>n</b>      | <b>Mean</b>          | <b>Std Dev</b>      | <b>Min</b>   | <b>Max</b> |
| Least Res           | 43            | -1.11                | 0.61                | -2.46        | -0.42      |
| Mid Res             | 42            | 0.06                 | 0.25                | -0.38        | 0.47       |
| Most Res            | 43            | 1.07                 | 0.4                 | 0.48         | 2.04       |