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The Brief Resilience Scale: Assessing the Ability to Bounce Back

Bruce W. Smith, Jeanne Dalen, Kathryn Wiggins, Erin Tooley, Paulette Christopher,
and Jennifer Bernard

Background: While resilience has been defined as resistance to illness, adaptation, and thriving, the ability to bounce back or recover from stress is closest to its original meaning. Previous resilience measures assess resources that may promote resilience rather than recovery, resistance, adaptation, or thriving. **Purpose:** To test a new brief resilience scale. **Method:** The brief resilience scale (BRS) was created to assess the ability to bounce back or recover from stress. Its psychometric characteristics were examined in four samples, including two student samples and samples with cardiac and chronic pain patients. **Results:** The BRS was reliable and measured as a unitary construct. It was predictably related to personal characteristics, social relations, coping, and health in all samples. It was negatively related to anxiety, depression, negative affect, and physical symptoms when other resilience measures and optimism, social support, and Type D personality (high negative affect and high social inhibition) were controlled. There were large differences in BRS scores between cardiac patients with and without Type D and women with and without fibromyalgia. **Conclusion:** The BRS is a reliable means of assessing resilience as the ability to bounce back or recover from stress and may provide unique and important information about people coping with health-related stressors.

Key words: brief resilience scale, stress, recovery, pain, cardiac

During the past decade, resilience has increasingly become a focus of research in the behavioral and medical sciences (Charney, 2004; Masten, 2001). However, “resilience” has been defined in a variety of ways, including the ability to bounce back or recover from stress, to adapt to stressful circumstances, to not become ill despite significant adversity, and to function above the norm in spite of stress or adversity (Carver, 1998; Tusaie & Dyer, 2004). In addition, the measures that have been developed to assess “resilience” have not focused on these qualities but on the factors and

resources that make them possible (Ahern, Kiehl, Sole, & Byers, 2006).

Resilience as Bouncing Back

The purpose of this article is to clarify the study of resilience by presenting a scale for assessing the original and most basic meaning of the word resilience. The root for the English word “resilience” is the word “resile,” which means “to bounce or spring back” (from re- “back” + salire- “to jump, leap”; Agnes, 2005). While recognizing that words evolve in meaning over time, the ability to bounce back or recover from stress may be important to assess and study in its own right. In addition, this ability may be particularly important for people who are already ill or are dealing with ongoing health-related stresses.

In distinguishing between the other meanings associated with resilience, it may be useful to use different words for resistance to illness, adaptation to stress, and functioning above the norm in spite of stress. Carver (1998) provided a clear distinction between “resilience” as returning to the previous level of functioning (e.g., bouncing back or recovery) and “thriving” as moving to a superior level of functioning following a stressful event. In addition, “adaptation” (or “stress adaptation”) could be used for changing to adjust to a new situation. Finally, it may be preferable to use

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a word like “resistance” (as in “stress resistance” or “resistance to illness”) to refer to not becoming ill or showing a decrease in functioning during stress.

Previous Measures of Resilience

Even though several meanings have been associated with resilience, it is striking that measures of resilience have not directly targeted them. Ahern et al. (2006) have recently reviewed the instruments that were designed to measure resilience. They focused on six measures, and the range of constructs measured included “protective factors that support resiliency,” “successful stress-coping ability,” “central protective resources of health adjustment,” “resilient coping behavior,” and “resilience as a positive personality characteristic that enhances individual adaptation” (p. 110).

Rather than specifically assessing resilience as the ability to bounce back, resist illness, adapt to stress, or thrive in the face of adversity, previous measures have generally assessed protective factors or resources that involve personal characteristics and coping styles. For example, the Resilience Scale (Wagnild & Young, 1993) aimed to assess equanimity, perseverance, self-reliance, meaningfulness, and existential aloneness. Similarly, the Connor Davidson Resilience Scale (Connor & Davidson, 2003) aimed to assess characteristics such as self-efficacy, sense of humor, patience, optimism, and faith.

In understanding people faced with health problems, it is undoubtedly important to identify the characteristics or factors that may promote resilience, such as optimism, active coping, and social support. While measures have been developed to assess these characteristics individually, the current “resilience” measures appear to provide a useful summary score of the resources that generally support positive adaptation. However, it may be more semantically accurate and clear to refer to characteristics that may increase the likelihood of resilience as “resilience resources.”

The Current Studies

The authors developed a brief resilience scale to determine whether it is possible to reliably assess resilience as bouncing back from stress, whether it is related to resilience resources, and whether it is related to important health outcomes. Our strategy was to use as few items as necessary to develop a reliable scale for a unitary construct. We selected the final items from a list of potential items based on the feedback of research team members and piloting with undergraduate students. We included an equal number of positive and negatively worded items to reduce the effects of social desirability and positive response bias.

We tested the BRS on four separate samples to determine whether it is reliable and demonstrates convergent and predictive discriminant validity. We expected

that the ability to bounce back or recover from stress would be valuable in coping with health-related stressors. We included cardiac rehabilitation and chronic pain patients because resilience may be particularly important for them (Chan, Lai, & Wong, 2006; Zautra, Johnson, & Davis, 2005). Our hypotheses were that the BRS would represent one factor, would be related to resilience resources and health-related outcomes, and would predict health outcomes when controlling for resilience resources.

Methods

Participant Samples

The BRS was tested on four samples. Sample 1 consisted of 128 undergraduate students. Sample 2 consisted of 64 undergraduate students. Sample 3 consisted of 112 cardiac rehabilitation patients. Sample 4 consisted of 50 women who either had fibromyalgia ($n = 20$) or were healthy controls ($n = 30$). All four samples were recruited from a medium-sized metropolitan area in the southwestern U.S. (Albuquerque, New Mexico).

Design

The BRS was administered to each of these four samples in questionnaires. The questionnaires for each sample were not identical but measured many of the same constructs. These questionnaires assessed a range of resilience-related constructs, other personal characteristics, coping styles, social relationships, and health-related outcomes. The list of measures below indicates which measures were included for each sample.

The Brief Resilience Scale

The six items of the brief resilience scale (BRS) are presented in Table 1. Items 1, 3, and 5 are positively worded, and items 2, 4, and 6 are negatively worded. The BRS is scored by reverse coding items 2, 4, and 6 and finding the mean of the six items. The following instructions are used to administer the scale: “Please indicate the extent to which you agree with each of the following statements by using the following scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.”

Other Measures

1. Resilience-Related Constructs

Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003). The CD-RISC was designed to assess the personal characteristics that embody resilience. It contains 25 items responded to

Table 1. *The Brief Resilience Scale: Items and Factor Loadings*

Items	Sample 1	Sample 2	Sample 3	Sample 4
1. I tend to bounce back quickly after hard times	.77	.79	.70	.89
2. I have a hard time making it through stressful events (R)	.73	.78	.68	.91
3. It does not take me long to recover from a stressful event	.78	.78	.71	.71
4. It is hard for me to snap back when something bad happens (R)	.85	.90	.70	.85
5. I usually come through difficult times with little trouble	.69	.69	.71	.68
6. I tend to take a long time to get over set-backs in my life (R)	.84	.81	.67	.68

Note. Sample 1 = 128 undergraduate students; Sample 2 = 64 undergraduate students; Sample 3 = 112 cardiac rehabilitation patients; Sample 4 = 50 women with fibromyalgia or healthy controls. R = reverse coded items.

on a 5-point scale. The CD-RISC was included in Sample 1.

Ego Resiliency Scale (Block & Kremen, 1996). This was designed to assess “the ability to change from and also return to the individual’s characteristics level of ego-control after the temporary, accommodation-requiring, stressing influence is no longer acutely present” (Block & Kremen, 1996; p. 351). It contains 14 items responded to on a 4-point scale and was included in Sample 1.

2. Other Personal Characteristics

Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994). The LOT-R included three items assessing optimism and three items assessing pessimism. The items are responded to on a 5-point scale. The optimism items were in all samples and the pessimism items were in Samples, 1, 2, and 4.

Purpose in Life (Ryff & Keyes, 1995). This assesses the belief that one’s life has meaning and purpose. The items are scored on a 6-point scale. The 9-item version was in Samples 1 and 4 and the 3-item version was in Sample 3.

Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994). The TAS-20 was designed to assess difficulty finding words for feelings. The 20 items are scored on a 5-point scale and were included in Samples 1 and 4.

Type D Personality (DS14; Denollet, 2005). The DS14 assesses for Type D personality. Type D is a joint tendency toward negative affectivity and social inhibition and has been related to poor cardiac prognosis (Denollet, 2005). Fourteen items are scored on a 5-point scale. Seven items assess negative affectivity and seven items assess social inhibition. It was included in Sample 3.

3. Coping Styles

Brief COPE (Carver, 1997). The Brief COPE consists of 28 items to assess 14 coping strategies. The items are scores on a 4-point scale. All of the items were included in Samples 1 and 4, and items for selected strategies were included in Samples 2 and 3.

4. Social Relationships

Interpersonal Support Evaluation List (ISEL; Cohen, Mermelstein, Karmarck, & Hoberman, 1985). The ISEL consists of 12 items to assess social support using a 4-point scale. It was included in Samples 1 and 2.

MOS Social Support Survey (MOS-SSS; Sherbourne & Stewart, 1991). This consists of 20 items assessing social support using a 5-point scale. An 8-item short version was in Sample 3, and the full 20-item version was in Sample 4.

Negative Social Interactions (Finch, Okun, Barrera, Zautra, & Reich, 1989). This measure includes four items to assess negative social interactions. These items were included in Samples 1, 2, and 4.

5. Health-Related Outcomes

Brief Health-Related Measures. Sample 3 also included one 7-point item assessing the number of exercise days per week. Samples 3 and 4 included a 10-point item measuring fatigue. Sample 4 included three visual analogue scales assessing current, worse, and average pain that were summed to form an overall index of pain.

Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983). There are 7 items each to assess anxiety and depression. The items are scored on a 4-point scale. The HADS was included in Samples 3 and 4.

Mental Health Inventory (Veit & Ware, 1983). This consists of 9 items to assess anxiety and 9 items to assess depression. The items are scored on 5- or 6-point scales. These items were included in Samples 1 and 2.

Mood Adjective Checklist (Larsen & Diener, 1992). Six items were included to assess negative affect and six items were included to assess positive affect. They were scored on a 6-point scale and were included in Sample 3.

Physical Symptoms Index (Moos, Cronkite, & Finney, 1986). This measure includes 12 items to assess physical symptoms such as headaches and constipation. It was included in Samples 1, 3, and 4.

Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). The PSS consists of 10 items that assess perceived stress. The items are scored on a 4-point scale. The PSS was included in all four samples.

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS includes 20 items to assess positive and negative affect. It was scored on a 5-point scale and included in Samples 1, 2, and 4.

Statistical Analyses

The primary analyses assessed the factor structure, reliability, and validity of the BRS. The factor structure was examined by principal components analyses (PCA) with a varimax rotation retaining eigenvalues > 1. Internal consistency was examined using Cronbach's alpha, and test-retest reliability was examined using the intra-class correlation (ICC) for absolute agreement. Convergent validity was assessed by zero-order correlations between the BRS and the other measures. Discriminant predictive validity was assessed by partial correlations, with health-related outcomes controlling for other predictors. In addition, we compared mean BRS scores across samples and subgroups using independent samples t-tests.

Results

Table 2 displays the descriptive statistics for age, gender, and the BRS for each sample. Samples 1 and 2 were young and primarily female. Sample 3 was relatively old and primarily male. Sample 4 was middle-aged and all female. The mean BRS scores ranged from 3.53 in Sample 1 to 3.98 in Sample 3. BRS scores were significantly higher in Sample 3 than in Samples 1, 2, and 4 combined (3.98 vs. 3.56, $t = 5.053$, $df = 352$, $p < .001$), which did not differ from each other.

Factor Structure and Reliability

Table 1 shows the PCA loadings of the BRS items for each of the four samples. The results for each sample revealed a one-factor solution accounting for 55–67% of the variance (Samples 1–4 = 61%, 61%, 57%, 67%, respectively). The loadings ranged from .68 to .91. Internal consistency was good, with Cronbach's alpha ranging from .80–.91 (Samples 1–4 = .84, .87,

.80, .91, respectively). The BRS was given twice in two samples with a test-retest reliability (ICC) of .69 for one month in 48 participants from Sample 2 and .62 for three months in 61 participants from Sample 3.

Convergent Validity

Table 3 shows the zero-order correlations between the BRS and personal characteristics, social relations, coping, and health outcomes for each sample. The BRS was positively correlated with the resilience measures, optimism, and purpose in life, and negatively correlated with pessimism and alexithymia. In addition, it was positively correlated with social support and negatively correlated with negative interactions. Finally, it was consistently positively correlated with active coping and positive reframing and negatively correlated with behavioral disengagement, denial, and self-blame.

With regard to health-related outcomes, the BRS was consistently negatively correlated with perceived stress, anxiety, depression, negative affect, and physical symptoms. In addition, it was positively correlated with positive affect in three of the four samples and with exercise days per week in the cardiac rehabilitation sample. It was negatively correlated with fatigue in the cardiac sample and negatively correlated with fatigue and pain in the sample of middle-aged women.

Discriminant Predictive Validity

We examined discriminant predictive validity in the two larger samples. Table 4 shows the zero-order and partial correlations between each of the BRS, CD-RISC, ego resiliency, and the health outcomes in the first undergraduate sample. The zero-order correlations revealed that the "resilience" measures were almost always related in the expected direction with the outcomes, with the exception that ego resiliency was only marginally related to less negative affect.

The partial correlations were obtained by correlating each resilience measure with each outcome, while controlling for both of the other "resilience" measures. The BRS was still negatively related to perceived stress, anxiety, depression, negative affect, and physical symptoms. The CD-RISC was still negatively related to perceived stress and still positively related to positive affect. The ego resiliency scale was still positively related to positive affect.

Table 5 shows the zero-order and partial correlations between the BRS, optimism, social support, and Type D and the health outcomes in the cardiac sample. The zero-order correlations revealed that the BRS was correlated with all seven outcomes and that optimism, social support, and Type D were correlated with five outcomes. The partial correlations showed that the BRS was still related to perceived stress, anxiety, depression, negative affect, fatigue, and marginally to exercise days. Optimism was still related to perceived stress,

Table 2. Descriptive Statistics for the Four Samples

	Sample 1	Sample 2	Sample 3	Sample 4
Sample size	128	64	112	50
Age (years)	20.4 (4.0)	19.8 (3.0)	62.8 (10.5)	47.3 (8.2)
Gender(% female)	76	67	24	100
BRS scores	3.53 (0.68)	3.57 (0.76)	3.98 (0.68)	3.61 (0.85)

Note. Standard deviations are listed in parentheses.

Table 3. *Correlations Between the Brief Resilience Scale and Other Measure*

	Sample 1	Sample 2	Sample 3	Sample 4
Personal characteristics				
Alexithymia	-.47**	—	—	-.44**
CD-RISC	.59**	—	—	—
Ego resiliency	.51**	—	—	.49**
Optimism	.45**	.63**	.69**	.55**
Pessimism	-.40**	-.56**	—	-.32*
Purpose in life	.46**	—	.47**	.67**
Social relationships				
Negative interactions	-.25**	-.47**	—	-.46**
Social support	.28**	.27*	.30**	.40**
Coping				
Acceptance	.43**	.42**	.18 ⁺	.22
Active coping	.40**	.41**	.38**	.31*
Behavioral disengagement	-.39**	—	—	-.52**
Denial	-.37**	-.33*	-.32**	-.53**
Humor	.32**	.18	.09	.08
Planning	.27**	—	—	.42**
Positive reframing	.40**	.41**	.38**	.31*
Religion	.16 ⁺	—	—	.08
Self-blame	-.27**	-.47**	-.36**	-.35*
Self-distraction	.07	—	—	-.26 ⁺
Substance use	-.06	-.45**	-.22*	-.32*
Using emotional support	.16 ⁺	.10	—	.13
Using instrumental support	.15 ⁺	.33*	—	-.12
Venting	-.14	—	.04	.16
Health-related outcomes				
Anxiety	-.46**	-.56**	-.53**	-.60**
Depression	-.41**	-.49**	-.50**	-.66**
Exercise days	—	—	.23*	—
Fatigue	—	—	-.32**	-.55**
Negative affect	-.34**	-.53**	-.51**	-.68**
Pain	—	—	—	-.59**
Perceived stress	-.60**	-.71**	-.61**	-.64**
Physical symptoms	-.39**	-.28*	—	-.50**
Positive affect	.46**	.17	.45**	.63**

Note. Sample 1 = 128 students; Sample 2 = 64 students; Sample 3 = 112 cardiac patients; Sample 4 = 50 women with fibromyalgia or healthy controls. + $p < .10$, * $p < .05$, ** $p < .01$.

anxiety, and positive affect, and marginally to negative affect. Social support was still related to positive affect and marginally to anxiety. Type D was still related to depression and negative affect and marginally to positive affect.

Subgroup Differences in BRS Scores

Finally, we wanted to determine whether there were subgroup differences in mean BRS scores between men and women within samples, between participants with

Table 4. *Zero-Order and Partial Correlations between Resilience Measures and Outcomes for Undergraduate Students^a*

	Zero-Order Correlations			Partial Correlations		
	BRS	CD-RISC	Ego Resiliency	BRS	CD-RISC	Ego Resiliency
Perceived stress	-.60**	-.53**	-.40**	-.38**	-.26*	.04
Anxiety	-.46**	-.40**	-.33**	-.29**	-.15	-.02
Depression	-.41**	-.35**	.28**	-.21*	-.14	-.04
Negative affect	-.34**	-.25**	-.16 ⁺	-.24*	-.14	.12
Positive affect	.46**	.68**	.69**	.09	.40**	.26**
Physical symptoms	-.39**	-.35**	-.25*	-.23*	-.15	.04

^aSample 1 (128 undergraduates students). + $p < .10$, * $p < .05$, ** $p < .01$.

Table 5. Zero-Order and Partial Correlations of the Brief Resilience Scale, Optimism, Social Support, and Type D for Cardiac Patients^a

	Zero-Order Correlations				Partial Correlations			
	BRS	Optimism	Social Support	Type D	BRS	Optimism	Social Support	Type D
Perceived stress	-.61**	-.38**	-.29**	.35**	-.46**	-.30**	-.12	.05
Anxiety	-.53**	-.34**	-.35**	.36**	-.33**	-.24*	-.20 ⁺	.01
Depression	-.50**	-.25**	-.26**	.46**	-.37**	-.08	-.17	.32**
Negative affect	-.51**	-.39**	-.19 ⁺	.43**	-.35**	-.22 ⁺	.01	.20*
Positive affect	.45**	.40**	.25**	-.36**	.20 ⁺	.28*	.23*	-.19 ⁺
Fatigue	-.32**	-.18 ⁺	-.19*	.13	-.28**	-.07	-.17	.00
Exercise days	.23*	.06	.11	-.08	.19 ⁺	-.07	-.06	.06

^aSample 3 (112 cardiac rehabilitation patients). + $p < .10$, * $p < .05$, ** $p < .01$.

Type D and without Type D in Sample 3, and between women with and without fibromyalgia in Sample 4. There were no differences between men and women in Samples 1 and 2, but BRS scores were higher in men ($M = 4.07$, $SD = 0.66$) than for women ($M = 3.67$, $SD = 0.70$) in Sample 3 ($t = 2.673$, $df = 110$, $p < .01$, $d = .60$). Gender differences could not be examined in Sample 4 because it only included women. In Sample 3, the BRS scores were higher for the 93 cardiac patients without Type D ($M = 4.11$, $SD = 0.60$) than for the 19 cardiac patients with Type D ($M = 3.27$, $SD = 0.67$; $t = 5.318$, $df = 110$, $p < .001$, $d = 1.32$). Finally, in Sample 4, BRS scores were higher for the 30 women without fibromyalgia ($M = 3.96$, $SD = 0.58$) than for the 20 women with fibromyalgia ($M = 3.09$, $SD = 0.93$; $t = 4.074$, $df = 48$, $p < .001$; $d = 1.12$).

Discussion

The purpose of this study was to test a new brief resilience scale to assess the ability to bounce back or recover from stress. We examined the BRS in two student and two behavioral medicine samples. We found that the BRS demonstrated good internal consistency and test-retest reliability. In addition, our hypotheses that it would represent one factor, would be related to resilience resources and health-outcomes, and would predict health outcomes beyond resilience resources were supported. Finally, there were BRS score differences between those with and without Type D and those with and without fibromyalgia.

The results suggest that the BRS may have a unique place in behavioral medicine research. First, previous measures of resilience target the personal characteristics that may promote positive adaptation and not resilience itself. The BRS is the only measure that specifically assesses resilience in its original and most basic meaning: to bounce back or recover from stress (Agnes, 2005). When studying people who are already ill, assessing the specific ability to recover may be more important than assessing the ability to resist illness.

Second, the BRS may be uniquely related to health when controlling for previous resilience measures and measures of individual resilience resources (e.g., optimism and social support). Since the BRS is framed with regard to negative events ("stressful events," "hard times," "difficult times," "set-backs"), it is not surprising that its unique effects were specific to reducing negative outcomes (anxiety, depression, negative affect, physical symptoms).

Third, the relationship that we found between the BRS and resilience resources suggests it may mediate the effects of resilience resources on health outcomes. Resources such as optimism, social support, active coping, and the range of those assessed by previous resilience measures may facilitate the ability to recover from stress or adversity. The ability to recover itself may, in turn, have a more direct relationship with health outcomes.

Finally, these studies have limitations which lay the groundwork for future studies using the BRS. The BRS needs to be used in longitudinal studies to determine whether it predicts recovery from important health stressors. In addition, the BRS needs to be compared with physiological indicators of bouncing back or recovery from stress and illness (Charney, 2004). Last, the relationship between the BRS and other forms of positive adaptation, such as thriving and posttraumatic growth, and their effects on health needs to be examined.

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