

Studi sperimentali

Development and validation of the Italian version of the 15-item Dispositional Resilience Scale

Sviluppo e validazione della versione italiana della Dispositional Resilience Scale a 15 item

ANGELO PICARDI¹, PAUL T. BARTONE², RAFFAELLA QUERCI³, DANIELA BITETTI⁴,
LORENZO TARSITANI⁵, VALENTINA ROSELLI⁵, ANNALISA MARAONE⁵, ELISA FABI⁵,
FRANCESCO DE MICHELE⁵, ILARIA GAVIANO⁵, BRIAN FLYNN⁶, ROBERT URSANO⁶,
MASSIMO BIONDI⁵

E-mail: angelo.picardi@iss.it

¹Mental Health Unit, Center of Epidemiology, Surveillance and Health Promotion, Italian National Institute of Health, Rome

²Center for Technology and National Security Policy, National Defense University, Washington

³SERT 1, ASL Città di Milano, Milan

⁴Dermopathic Institute of the Immaculate IDI-IRCCS, Rome

⁵Department of Neurology and Psychiatry, Policlinico Umberto I, Sapienza University of Rome

⁶Center for the Study of Traumatic Stress, Uniformed Services University, Bethesda

SUMMARY. Studies have shown that psychological hardiness is an important stress resilience resource for individuals. The 15-item Dispositional Resilience Scale (DRS-15) is a short, reliable and valid self-report instrument to measure hardiness that is not available in Italian. The present study was undertaken to create an Italian version of the DRS-15, and evaluate its psychometric properties and validity in the Italian context. An Italian version was produced using multiple independent bilingual translators. This version was administered to a non-clinical sample of adults (N=150), along with measures of psychological well-being (PWB-18) and health. A sub-sample (N=66) completed the DRS-15 again one month later. Results showed good reliability in terms of internal consistency and test-retest stability. With regard to the subscales, stability was high for all three subscales, whereas two subscales (Commitment and Control) showed marginal internal consistency. DRS-15 total and subscale scores showed a theoretically meaningful pattern of correlations with PWB-18 subscales, supporting the validity of the Italian DRS. Also, multiple regression analysis revealed a correlation between DRS-15 scores and self-rated general health, even after controlling for age and sex. The new Italian DRS-15 provides a valid, reliable and easy to use tool for assessing stress resilience in clinical and research settings.

KEY WORDS: hardiness, stress, psychological well-being, validity, reliability.

RIASSUNTO. Vi sono evidenze che la solidità psicologica (Hardiness) è una risorsa importante per la resilienza allo stress. Vi è uno strumento autocompilato breve, affidabile e valido per misurare la "Hardiness", la versione a 15 item della Dispositional Resilience Scale (DRS-15), che non è tuttavia disponibile in italiano. Gli obiettivi di questo studio sono stati creare una versione italiana della DRS-15 e valutarne le sue proprietà psicometriche nel contesto italiano. La versione italiana della DRS-15 è stata prodotta con una procedura basata su traduttori multipli bilingui. Tale versione è stata somministrata a un campione non clinico di 150 adulti, unitamente a misure di salute e benessere psicologico (PWB-18). Un subcampione (N=66) ha compilato nuovamente la DRS-15 dopo un mese. La versione italiana della DRS-15 ha mostrato buona affidabilità in termini sia di omogeneità che di stabilità del punteggio totale. Per quanto concerne le tre sottoscale, la stabilità è risultata alta per tutte, mentre l'omogeneità è risultata modesta per due di esse (Commitment e Control). A sostegno della validità dello strumento, i punteggi della DRS-15, sia quello totale che quelli delle sottoscale, hanno mostrato un profilo di correlazioni teoricamente coerente con le sottoscale PWB-18. Inoltre, un'analisi di regressione multipla ha mostrato una correlazione tra il punteggio totale della DRS-15 e la salute generale autovalutata, anche controllando per età e sesso. In conclusione, la versione italiana della DRS-15 costituisce uno strumento valido, affidabile e di facile utilizzo per valutare la resilienza allo stress in contesti clinici e di ricerca.

PAROLE CHIAVE: solidità psicologica, stress, benessere psicologico, validità, affidabilità.

INTRODUCTION

It is common observation that some individuals have a relatively good psychological outcome despite suffering experiences that would be expected to bring about serious sequelae. In the Seventies, pioneer work by developmental psychologists and psychiatrists documented the large number of children with healthy developmental trajectories despite growing up in difficult socioeconomic circumstances, such as poverty (1). Indeed, subsequent research has highlighted that most people cope well with highly aversive events that typically fall outside the range of normal everyday experience (2). While resilient individuals may experience at least some form of transient stress reaction, these reactions are usually of mild to moderate severity, are relatively short-term, and do not significantly interfere with their ability to continue functioning (3,4).

The term resilience thus refers to a pattern of functioning indicative of positive adaptation in the context of significant risk or adversity, and to a person's ability to adapt successfully to acute stress, trauma or more chronic forms of adversity (5,6). Some authors distinguish the concept of resistance, characterized by maintaining good function despite exposure to stress, from that of resilience, characterized by a disturbance in function followed by rapid recovery (7). In the field of mental health, there is increasing interest in this construct, and in recent years scientific and technological advances have even made it possible to begin to unravel the underlying biological processes associated with resilient phenotypes (8).

There are three major categories of factors implicated in resilience: individual attributes, close relationships such as those with family and friends, and external support, such as quality neighborhoods and schools and connections to prosocial organizations. These factors have been remarkably reliable in predicting positive psychological functioning following adversity (1).

Both the child and adult literatures on resilience acknowledge the contribution of both personality assets as well as environmental resources in promoting effective response to challenge, and emphasize the importance of personality characteristics that may protect individuals against the negative consequences of adverse life experiences (2,6,9,10). Individual attributes associated with resilience include dispositional optimism, high positive emotionality, a sense of purpose in life, an internal framework of beliefs about right and wrong, spirituality, the use of active coping strategies such as problem solving and planning, the ability to find meaning in traumatic experiences, and the tendency to perceive stressful events in less threatening ways

and to reframe adverse experiences in a more positive light. Personality traits that have emerged as important psychological assets are ego resiliency, defined as the capacity to overcome, steer through, and bounce back from adversity (11), and hardiness.

Originally proposed by Kobasa and colleagues (12,13) to account for individual differences in responses to stressful life events and situations, hardiness is conceptualized as a personality dimension that develops early in life and is fairly stable over time. Hardiness, that can be translated into Italian as "solidità" or "robustezza" or "resistenza", is defined as the presence of three interrelated dispositions: commitment (rather than alienation), control (rather than powerlessness), and challenge (rather than threat). Theoretically grounded in the work of existential philosophers and psychologists such as Binswanger (14) and Frankl (15), the construct of hardiness involves how meaning gets constructed in life, even during painful situations, and having the courage to live life fully.

Individuals high in hardiness have a strong sense of life and work commitment, a greater feeling of control, and are more open to change and challenges in life. They tend to interpret stressful experiences as a normal aspect of existence, as a part of life that is overall interesting and worthwhile. A fairly extensive body of research with a variety of occupational (13,16-18) and military (19-23) groups has accumulated showing that hardiness protects against the negative effects of stress on health and performance.

For decades, investigators who wished to include hardiness in their research have been hampered by the lack of an accepted, standard instrument to measure this construct. The 15-item Dispositional Resilience Scale (DRS-15) stems from a 53-item version originally used by Maddi, Kobasa and colleagues at the University of Chicago in the early Eighties. By adding new items and eliminating poor ones, a new 50-item scale was developed for use with city bus drivers (24). Additional psychometric refinement with military samples led to an improved 45-item version, and then a 30-item version (24). Finally, careful item and reliability analyses with mixed-gender military sample resulted in a 15-item version that displayed good reliability and showed appropriate criterion-related and predictive validity in several samples, with respect both to health and performance under high-stress conditions (25,26).

This paper describes the development and validation of the Italian version of the DRS-15. We evaluated the reliability of the instrument both in terms of internal consistency and stability, and we assessed its criterion-related validity against self-rated health and the

Development and validation of the Italian version of the DRS-15

Psychological Well-Being Scale (27), a widely known measure of positive psychological functioning that includes subscales covering several resilience-related constructs such as environmental mastery, personal growth, and purpose in life.

METHODS

Participants

The study sample was recruited among friends and relatives of a group of students and graduate students attending the Department of Neurology and Psychiatry, Policlinico Umberto I, Sapienza University of Rome, Italy. All subjects gave their written informed consent to take part in the study and met the following criteria: 1) age 18-65 years; 2) absence of severe medical or psychiatric illness; 3) absence of cognitive impairment.

A total of 150 participants were enrolled in the study and completed the DRS. Of these, 66 completed the DRS for a second time after about 4 weeks (mean 29.9 ± 7.4 days). They did not significantly differ on any sociodemographic variable and on self-rated health from the 84 participants who completed the DRS only at baseline. The sociodemographic characteristics of participants are summarized in **Table 1**.

Assessment

Participants provided a self-rating of their health on a 5-point scale ranging from “very poor” to “excellent” and were given the 18-item Psychological Well-Being scale (PWB-18) and the DRS to complete.

The PWB-18 (27) consists of 18 items, rated on a 1 (“strongly disagree”) to 7 (“strongly agree”) scale. It yields scores on six subscales, named self-acceptance (S), positive relationships with others (R), personal growth (G), purpose in life (P), environmental mastery (E), and autonomy (A). Individuals scoring high on S possess a positive attitude toward themselves, acknowledge and accept multiple aspects of self, including good and bad qualities, and feel positive about past life. High scorers on R have warm, satisfying, trusting relationships with others, are concerned about the welfare of others, are capable of strong empathy, affection, and intimacy, and understand the give and take of human relationships. Individuals high in G have a feeling of continued development, see themselves as growing and expanding, are open to new experiences, have sense of realizing their potential, see improvement in themselves over time, and are changing in ways that reflect more self-knowledge and effectiveness. High scorers on P have goals in life and a sense of directedness, feel there is meaning to present and past life, hold beliefs that give life purpose, and have aims and objectives for living. Individuals scoring high on M have a sense of mastery and competence in managing the en-

vironment, control complex array of external activities, make effective use of surrounding opportunities, and are able to choose or create contexts suitable to personal needs and values. High scorers on A are self-determining and independent, able to resist social pressures to think and act in certain ways, regulate behaviour from within, and evaluate themselves by personal standards.

The DRS is a self-completed questionnaire consisting of 15 items, scored on a 4-point scale ranging from 0 (not at all true) to 3 (completely true). The instrument includes positively- and negatively-keyed items covering the three conceptually important Hardiness facets of commitment, control and challenge. In addition to a total score, the DRS yields scores for three subscales: Commitment, Control, and Challenge. In a sample of Army reservists in medical units mobilized for the Gulf War, coefficient alpha for the total hardiness measure was found to be .83 for the total score and .77, .71, and .70 for the Commitment, Control, and Challenge subscale, respectively (25). In another sample of undergraduates freshmen at the U.S. Military Academy, West Point, the test-retest reliability at 3 weeks was .78 for the total score and .75, .58, and .81 for the Commitment, Control, and Challenge subscales (26).

To obtain a valid Italian version, we followed well-known paths in the cross-cultural adaptation of psychosocial measures (28). An initial translation was produced by three independent translators, all fluent in both Italian and English (A.P., D.B., R.Q.). Then, each translator independently reviewed the other two versions and provided comments and suggestions. Each translator included those suggestions deemed to be relevant in a second version. This process was repeated one more time, until consensus was reached. The clarity and the acceptability of the resulting version were tested in a pilot administration until a final Italian version of the DRS was produced. We decided to concentrate on producing a good translation and to abstain from performing iterative back-translation, as several scholars (29) have argued persuasively against back-translation for theoretical and practical reasons, characterizing it as merely a sub-optimal procedure for checking translations that achieves linguistic and conceptual equivalence but does not pay attention to clarity and understandability and does not take due account of context and milieu (30,31).

The Italian version of the DRS-15 is reported in **Table 2**. Permission to use the Italian version of the DRS-15 should be requested by e-mail (bartonep@gmail.com) or website (<http://www.hardiness-resilience.com>) from Dr. Paul T. Bartone, the copyright owner of the original English version.

Statistical analysis

All analyses were performed with SPSS for Windows, version 17.0. All statistical tests were two-tailed, with alpha set at 0.05.

A descriptive analysis was used to study the frequency distribution of all variables of interest. Analysis of variance was used to test for differences in DRS total and subscale scores between socio-demographic subgroups. Also, the skewness and kurtosis of the distributions for the DRS total and subscale scores was calculated.

Then, we determined the reliability of the DRS in terms of internal consistency and both absolute (i.e., the extent to which the scores remain the same across time or situations) and relative stability (i.e., the degree to which the relative differences in scores among individuals remain the same over time). The internal consistency of the DRS and its subscales was expressed by means of coefficient alpha. In order to assess absolute stability, the paired t-test was used to compare the mean DRS total and subscale scores at baseline and follow-up. To determine the magnitude of these differences in addition to their statistical significance, Cohen's d for within-subjects comparisons with the paired t-test was calculated correcting for dependence between means. Subsequently, in order to examine the relative stability of DRS scores, the intraclass correlation coefficient (ICC) between DRS total and subscale scores on the first and second administration was computed.

Finally, multiple linear regression analysis was used to examine the relationship between DRS scores and self-rated health, adjusting for age and sex. For the purpose of this analysis, given that only three participants rated their health as poor, the "poor" and "fair" ratings were grouped together.

RESULTS

The distribution of DRS total score was approximately normal, as it was quite symmetrical (skewness=-0.09, SE=0.20) and slightly platykurtic (kurtosis=-0.43, SE=0.39). Mean DRS total score did not differ by gender, age, and marital status, while they were found to be higher in participants with higher education. A similar finding was observed for mean Control and Commitment scores, while mean Challenge scores were found to be higher in unmarried participants (Table 3).

Table 4 summarizes the correlations between the DRS total and subscale scores and the PWB-18 subscales. The DRS total score was found to be significantly correlated with all the PWB-18 subscales, except for A. A similar finding was observed for the DRS Commitment and Control subscales, while the Challenge subscale was found to be significantly correlated only with the E and G subscales.

The DRS was found to be reliable in terms of both internal consistency and stability (Table 5). Coefficient alpha was 0.73, while the ICC between scores on the first and second administration was 0.75. Also, the change in DRS scores over time was negligible and non-significant, with a very small effect size.

With regard to the subscales, both absolute and relative stability were satisfactory for all three subscales, whereas only the Challenge subscale displayed adequate internal consistency.

In multiple regression analysis (Table 6), DRS total score was found to significantly predict self-rated health, independently of age and sex.

DISCUSSION

This study provides evidence for both validity and reliability for the Italian version of the DRS. Given the well-established relationship between hardiness and health, the independent association between the DRS total score and self-rated health corroborates the construct validity of the instrument. Moreover, the significant correlations found between DRS scores and most of the PWB-18 subscales, especially those most conceptually related to resilience, i.e., environmental mastery, personal growth, and purpose in life, strongly supports the validity of the DRS.

Also, the study findings corroborate the reliability of the DRS. The temporal stability of DRS scores was found to be substantial. While a previous study documented good relative stability of scores on the DRS and its subscales (26), this study provides evidence not only of relative but also of absolute stability for both

Table 1. Participants' characteristics

| | Participants assessed at baseline (N=150) | | Participants assessed on both occasions (N=66) | |
|-----------------------------|---|-------------|--|-------------|
| | N (%) | Mean ± SD | N (%) | Mean ± SD |
| Sex | | | | |
| male | 46 (30.7) | | 19 (28.8) | |
| female | 104 (69.3) | | 47 (71.2) | |
| Age | | 36.1 ± 11.4 | | 37.1 ± 11.1 |
| Marital status | | | | |
| unmarried | 86 (57.4) | | 35 (53.0) | |
| married | 49 (32.7) | | 26 (39.4) | |
| separated/divorced | 10 (6.7) | | 2 (3.0) | |
| widowed | 2 (1.3) | | 1 (1.5) | |
| missing information | 3 (2.0) | | 2 (3.0) | |
| Education | | | | |
| junior high school | 8 (5.3) | | 4 (6.1) | |
| senior high school | 80 (53.3) | | 37 (56.1) | |
| university degree or higher | 62 (41.3) | | 25 (37.9) | |
| Self-rated health | | | | |
| poor | 3 (2.0) | | 1 (1.5) | |
| fair | 47 (31.3) | | 17 (25.8) | |
| good | 78 (52.0) | | 34 (51.5) | |
| excellent | 22 (14.7) | | 14 (21.2) | |

Development and validation of the Italian version of the DRS-15

Table 2. The Italian version of the DRS

DRS-15

Copyright (c) 2005-2009 by Paul T. Bartone, all rights reserved

Istruzioni per la compilazione

Sono elencate qui sotto alcune affermazioni sulla vita sulle quali le persone spesso la pensano diversamente. Per favore, indichi con una crocetta la casella che meglio descrive quanto ritiene che ciascuna affermazione sia vera. Dia sinceramente le sue opinioni, non ci sono risposte giuste o sbagliate.

1. La maggior parte della mia vita è impiegata per fare cose utili.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

2. Pianificare in anticipo può aiutare a evitare la maggior parte dei problemi futuri.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

3. Non mi piace fare cambiamenti al mio programma quotidiano.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

4. Non ha importanza lavorare sodo, perché solo i capi ne traggono vantaggio.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

5. Trovo interessanti i cambiamenti nella routine quotidiana.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

6. Lavorando duramente puoi sempre raggiungere i tuoi obiettivi.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

7. Mi dedico veramente con piacere al mio lavoro.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

8. Se sto lavorando a un compito difficile, so quando è il momento di chiedere aiuto.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

9. La maggior parte delle volte, la gente ascolta attentamente quanto dico.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

10. Cercare di fare del tuo meglio sul lavoro alla fine ripaga davvero.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

11. Mi dà fastidio che la mia routine quotidiana venga interrotta.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

12. La maggior parte dei giorni, trovo la vita veramente interessante e stimolante.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

13. Quando devo fare più di una cosa alla volta, mi diverte la sfida.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

14. Mi piace avere un programma quotidiano che non vari di molto.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

15. Quando faccio dei progetti sono sicuro di riuscire a realizzarli.

| | | | |
|------------------------|---------------------|------------------------|---------------------------|
| <i>Per niente vero</i> | <i>Un poco vero</i> | <i>Abbastanza vero</i> | <i>Completamente vero</i> |
|------------------------|---------------------|------------------------|---------------------------|

Table 3. DRS scores by sociodemographic variables

| | Total score | Commitment | Control | Challenge |
|--------------------------------|-------------|------------|-----------|------------|
| Sex | | | | |
| male | 28.4 ± 4.8 | 9.7 ± 2.2 | 8.9 ± 2.0 | 9.9 ± 2.9 |
| female | 29.5 ± 5.4 | 10.2 ± 2.5 | 9.4 ± 1.9 | 9.9 ± 3.2 |
| Age | | | | |
| 18-39 | 29.5 ± 5.1 | 10.1 ± 2.3 | 9.2 ± 1.8 | 10.1 ± 3.0 |
| 40-65 | 28.7 ± 5.5 | 9.9 ± 2.6 | 9.4 ± 2.1 | 9.4 ± 3.2 |
| Marital status | | | | |
| unmarried | 29.9 ± 5.4 | 10.1 ± 2.6 | 9.2 ± 1.9 | 10.5 ± 3.0 |
| married | 28.2 ± 5.1 | 9.8 ± 2.1 | 9.4 ± 2.1 | 9.0 ± 2.9 |
| separated / divorced / widowed | 27.2 ± 4.6 | 10.3 ± 2.5 | 8.5 ± 1.6 | 8.3 ± 3.1 |
| Education | | | | |
| junior high school | 27.9 ± 3.6 | 9.2 ± 2.3 | 9.0 ± 1.5 | 9.6 ± 2.3 |
| senior high school | 28.2 ± 5.4 | 9.6 ± 2.5 | 8.9 ± 2.0 | 9.7 ± 3.2 |
| university degree or higher | 30.5 ± 5.0 | 10.7 ± 2.1 | 9.7 ± 1.9 | 10.1 ± 3.0 |

* p<0.05; ** p<0.01

Table 4. Correlations between DRS and PWB scores

| | DRS total score | Commitment | Control | Challenge |
|--------------------------------|-----------------|------------|---------|-----------|
| Autonomy | .01 | .02 | .05 | -.03 |
| Environmental mastery | .39*** | .29*** | .41*** | .18* |
| Personal growth | .38*** | .33*** | .27** | .21** |
| Positive relations with others | .23* | .22* | .30*** | .03 |
| Purpose in life | .39*** | .40*** | .39*** | .11 |
| Self-acceptance | .43*** | .48*** | .41*** | .10 |

Table 5. Reliability of DRS total and subscale scores

| | | Total DRS score | Commitment | Control | Challenge |
|-------------------------------------|-------------------------------------|-----------------|---------------|---------------|---------------|
| Internal consistency (N=150) | <i>Coefficient alpha</i> | 0.73 | 0.55 | 0.46 | 0.74 |
| Relative stability (N=66) | <i>ICC</i> | 0.75*** | 0.73*** | 0.69*** | 0.75*** |
| | <i>(95% CI)</i> | (0.63 – 0.84) | (0.60 – 0.83) | (0.54 – 0.80) | (0.63 – 0.84) |
| Absolute stability (N=66) | <i>Mean (SD) score at baseline</i> | 29.4 (4.9) | 10.1 (2.2) | 9.2 (2.0) | 10.0 (2.9) |
| | <i>Mean (SD) score at follow-up</i> | 29.3 (4.8) | 10.0 (2.3) | 9.1 (2.1) | 10.1 (2.7) |
| | <i>Cohen's d</i> | 0.03 | 0.06 | 0.06 | -0.05 |

CI= Confidence Intervals; ***p<.001

total and subscale scores, as they displayed negligible changes over a 4-week period. The internal consistency of the total score met the recommended standard ($\alpha \geq .70$) (32) and was similar in size to that observed in military groups (25). On the other hand, some caution is warranted with regard to the DRS subscales, except for the Challenge subscale, because their internal consistency was found to be unsatisfac-

tory, possibly due to the small number of items as the coefficient alpha depends from the number of items composing a scale (32). Some reassurance about the reliability of DRS subscales was nevertheless provided by the finding that both absolute and relative stability were adequate.

This study has some limitations. First, the follow-up assessment was performed only on a subsample of

Development and validation of the Italian version of the DRS-15

Table 6. Multiple regression analysis with self-rated health as dependent variable and age, sex, and DRS scores as independent variables

| | F | 5.8*** (df 3, 145) | | |
|---------------------------|-------------------------|--------------------|---------|-----------------|
| | R | 0.33 | | |
| | R ² | 0.11 | | |
| | Adjusted R ² | 0.09 | | |
| | | r | β | Sr ² |
| Age | | -0.25** | -0.24** | 0.06 |
| Sex (female=0, male=1) | | 0.11 | 0.14 | 0.02 |
| DRS total score | | 0.18* | 0.17* | 0.03 |

*p<0.05; **p≤0.01; ***p≤0.001; r= zero-order correlation; β= standardized regression coefficient; Sr²= squared semipartial correlation

participants in order to increase study feasibility. However, the statistical power of the longitudinal analyses was adequate. Also, study participants were drawn from the community and had average to high education, which suggests caution in generalizing our results to clinical populations and individuals with lower education.

With these limitations in mind, the satisfactory psychometric properties exhibited by the Italian version of the DRS suggest that this instrument, being short and easy to complete and to score, may be a very useful assessment tool for clinicians and researchers interested in the relationship between psychological resilience and health.

REFERENCES

- Garmezy N. Stress-resistant children: the search for protective factors. In: Stevenson JE (ed). Recent research in developmental psychopathology. (Child Psychology and Psychiatry Book Supplement). Oxford: Pergamon Press, 1985, pp. 213-233.
- Bonanno GA. Loss, trauma, and human resilience: have we underestimated the human capacity to thrive after extremely aversive events? *Am Psychol* 2004; 59: 20-8.
- Bonanno GA, Wortman CB, Lehman DR, et al. Resilience to loss and chronic grief: a prospective study from preloss to 18-months postloss. *J Pers Soc Psychol* 2002; 83: 1150-64.
- Ong AD, Bergeman CS, Bisconti TL, Wallace KA. Psychological resilience, positive emotions, and successful adaptation to stress in later life. *J Pers Soc Psychol* 2006; 91: 730-49.
- Rutter M. Implications of resilience concepts for scientific understanding. *Ann N Y Acad Sci* 2006; 1094: 1-12.
- Masten AS. Ordinary magic: resilience processes in development. *Am Psychol* 2001; 56: 227-38.
- Masten AS, Monn AR, Supkoff LM. Resilience in children and adolescents. In: Southwick SM, Litz BT, Charney D, Friedman MJ (eds). Resilience and mental health: challenges across the lifespan. Cambridge: Cambridge University Press, 2011.
- Feder A, Nestler EJ, Charney DS. Psychobiology and molecular genetics of resilience. *Nat Rev Neurosci* 2009; 10: 446-57.
- Luthar SS, Brown PJ. Maximizing resilience through diverse levels of inquiry: prevailing paradigms, possibilities, and priorities for the future. *Dev Psychopathol* 2007; 19: 931-55.
- Ryff CD, Singer B. Interpersonal flourishing: a positive health agenda for the new millennium. *Pers Soc Psychol Rev* 2000; 4: 30-44.
- Block J, Kremen AM. IQ and ego-resiliency: conceptual and empirical connections and separateness. *J Pers Soc Psychol* 1996; 70: 349-61.
- Kobasa SC. Stressful life events, personality, and health: an inquiry into hardiness. *J Pers Soc Psychol* 1979; 37: 1-11.
- Kobasa SC, Maddi SR, Kahn S. Hardiness and health: a prospective study. *J Pers Soc Psychol* 1982; 42: 168-77.
- Binswanger L. Being in the world: selected papers of Ludwig Binswanger. New York: Basic Books, 1963.
- Frankl V. The doctor and the soul. New York: Knopf, 1960.
- Contrada RJ. Type A behavior, personality hardiness, and cardiovascular responses to stress. *J Pers Soc Psychol* 1989; 57: 895-903.
- Roth DL, Wiebe DJ, Fillingim RB, Shay KA. Life events, fitness, hardiness, and health: a simultaneous analysis of proposed stress-resistance effects. *J Pers Soc Psychol* 1989; 57: 136-42.
- Wiebe DJ. Hardiness and stress moderation: a test of proposed mechanisms. *J Pers Soc Psychol* 1991; 60: 89-99.
- Bartone PT. Hardiness protects against war-related stress in Army reserve forces. *Consulting Psychology Journal* 1999; 51: 72-82.
- Bartone PT. Hardiness as a resiliency factor for United States Forces in the Gulf War. In: Violanti JM, Paton D, Dunning C (eds). Posttraumatic stress intervention: challenges, issues, and perspectives. Springfield: C. Thomas, 2000.
- Bartone PT, Ursano RJ, Wright KW, Ingraham LH. The impact of a military air disaster on the health of assistance workers: a prospective study. *J Nerv Ment Dis* 1989; 177: 317-28.
- Britt TW, Adler AB, Bartone PT. Deriving benefits from stressful events: the role of engagement in meaningful work and hardiness. *J Occup Health Psychol* 2001; 6: 53-63.
- Florian V, Mikulincer M, Taubman O. Does hardiness contribute to mental health during a stressful real life situation? The role of appraisal and coping. *J Pers Soc Psychol* 1995; 68: 687-95.
- Bartone PT. Predictors of stress-related illness in city bus drivers. *J Occup Med* 1989; 31: 657-63.
- Bartone PT. A short hardiness scale. Paper presented at the Annual Convention of the American Psychological Society, New York, July 1995.
- Bartone PT. Test-retest reliability of the Dispositional Resilience Scale-15, a brief hardiness scale. *Psychol Reports* 2007; 101: 943-44.
- Ryff CD, Keyes CLM. The structure of psychological well-being revisited. *J Pers Soc Psychol* 1995; 69: 719-27.
- Guillemin F, Bombardier C, Beaton D. Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. *J Clin Epidemiol* 1993; 46: 1417-32.
- Harkness J. In pursuit of quality: issues for cross-national survey research. *Int J Soc Res Methodol* 1999; 2: 125-40.
- Bulmer M. The problem of exporting social survey research. *American Behavioural Scientist* 1998; 42: 153-67.
- Hambleton RK, Merenda PF, Spielberger CD (ed). Adapting educational and psychological tests for cross-cultural assessment. New Jersey: Erlbaum, 2005.
- Nunnally JC. Psychometric theory. New York: McGraw-Hill, 1978.