
Psychometric Properties of the Reasons for Living Inventory in Italian University Students

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ABSTRACT - The aim of this study is to evaluate the psychometric properties of the Reasons for Living Inventory (RFL). The participants, 407 Italian university students, carried out an Italian adaptation of the RFL and answered a five-item self-report questionnaire to assess suicidal ideation and behavior in the last 12 months. We tested the adequacy of a six-factor model previously reported in literature by a Maximum Likelihood Confirmatory Factor Analysis. Fit indexes obtained were: $\chi^2 (df = 1065) = 2646.56, p < .01$; RMSEA = .06. All the subscales scores had discrete internal consistency, α ranging from .93 to .73. The discriminant analysis confirmed that the RFL factors can differentiate subjects with suicide attitudes in a non-clinical sample. To sum up, we can consider the RFL an acceptable instrument for suicidology group research in university students.

In the last decades, incidence of college students suicide / attempted suicide, or suicidal ideation has been the focus of a number of studies (e.g. Blaine & Carmen, 1968; Sims & Ball, 1973; Domino et al., 1980; Schotte & Clum, 1982); Schwartz & Whitaker (1990), examining the research on college student suicide rates over a 60-year period at some universities, concluded that the suicide rate among this population was approximately half that of the non-student group. However, other studies (e.g. Westefeld & Furr, 1987; Brener, et al., 1999; Furr, et al., 2001) reported that from 9% to 32% of sample subjects considered committing suicide since beginning college.

Now, it is well accepted that suicidal ideation is an important risk factor related to future self-injury behavior; these findings suggest that evaluation of

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reliable assessment tools to measure suicide risk and protective factors are relevant topics in this population.

Range & Knott (1997) completed a review of suicide assessment tools. They proposed that self-report instruments may more accurately assess suicide risk and protective factors because people are less constrained by social desirability. The authors identified several instruments with adequate psychometric properties and utility in research and clinical practice with college students, including the Self-Report Scale for Suicide Ideation (Beck et al., 1988), the Suicidal Ideation Scale (Rudd, 1989), the Suicide Probability Scale (Cull & Gill, 1982) and the Reasons for Living Inventory (Linehan et al., 1983).

Attention to adaptive beliefs and expectations makes the Reasons for Living Inventory (RFL) different from other instruments assessing suicide ideation, self-destructive thoughts and expectations. The RFL could be used to measure protective factors in psychotherapeutic and counselling settings, or measuring differences and changes in suicidal attitudes among college students.

The aim of this study is to evaluate the psychometric properties of an Italian adaptation of the Reasons for Living Inventory and provide non clinical normative data. In compliance with our objectives, a confirmatory factor analysis was conducted to establish the validity of a six-factor structure previously reported in the literature (e.g. Linehan et al., 1983). If data did not fit to this model, then the first objective was to examine post hoc a more valid model (Floyd & Widaman, 1995). The second objective was to evaluate reliability via internal consistency indexes and obtain normative data. A Third objective was to evaluate the discriminant validity and use Fisher's linear discriminant function to derive a classification rule for assigning subjects to one of two predefined groups of risk on the basis of the RFL dimensions.

Method

Participants

Participants included 407 students (174 males, 233 females) attending university, mean age of participants was 21.05 ($SD=2.29$). Subjects included in this study were recruited in the University of Rome "La Sapienza" during the normal courses of the academic year; students voluntarily completed the questionnaires anonymously.

Assessment Measures

The sample was subjected to an Italian adaptation of the Reasons for Living Inventory (Conti, 1999); the RFL is a 48-item questionnaire rated on a 6 point likert-type scale assessing several beliefs related to reasons for not committing suicide. Factor analyses indicated 6 primary reasons for living: Survival and Coping Beliefs (SCB), Responsibility to Family (RF), Child-Related Concerns (CC), Moral Objections (MO), Fear of Suicide (FS) and Fear of Social Disapproval (FSD). Several studies conducted in the United States colleges (e.g.

Connell & Meyer, 1991; Osman et al., 1991; Osman et al., 1992; Osman et al., 1993) provided support for the reliability of the RFL in this population, and indicated significant discriminant functions for non-suicidal / suicidal group separation.

Participants also answered a self-report questionnaire used to screen clinical and sub-clinical suicide ideation and suicide attempts in the last 12 months. The questionnaire consists of 5 true-false items assessing such characteristics as: Feeling life was not worth living (item 1), think that for you, and for your own family and friend, it was better be dead, (item 2), suicidal ideation (item 3), suicidal attempts planning (item 4), suicide attempts (item 5).

Results

Factor Validity

To assess the adequacy of a previously tested six-factor model of the RFL (e.g. Linehan et al., 1983; Osman et al., 1993), we conducted a confirmatory factor analysis. Analysis was conducted on a variance-covariance matrix, using Mx version 1.5 (Neale et al., 2003) by a maximum likelihood method of parameter estimation.

The structure tested comprised six correlated latent factors, representing SCB (24 items), RF (7 items), CC (3 items), MO (4 items), FS (7 items) and FSD (3 items).

Overall model fit was evaluated with the traditional χ^2 goodness-of-fit statistic, and with the Browne and Cudeck's (1993) Root Mean Squared Error of Approximation (RMSEA). To be judged a good fit, a model should have a non-significant chisquare ($p > .05$) and a RMSEA = .06 (Hu & Bentler, 1999). As expected, because of the large sample size, a significant chi-square was obtained (χ^2 ($df = 1065$) = 2646.56; $p < .01$) (Bentler & Bonnett, 1980); the Root Mean Squared Error of Approximation statistic, RMSEA = .06 (95% C.I. = .057; .064) indicated a good fit of the six-factor solution to the observed data.

The SCB factor had 24 loadings ranging from 1.05 (item 20) to .53 (item 17); the RF factor had 7 loadings ranging from 1.15 (item 30) to .34 (item 17); the CC factor had 3 loadings ranging from 1.36 (item 28) to 1.22 (item 21); the MO factor had 4 loadings ranging from 1.49 (item 34) to .87 (item 23); the FS factor had 7 loadings ranging from 1.33 (item 33) to .49 (item 6); and the FSD factor had 3 loadings ranging from 1.26 (item 43) to .96 (item 31).

Norms and Internal Consistency

Reliability was computed by internal consistency indexes. The RFL mean score and all the sub-scales scores had discrete internal consistency ($\alpha > .70$), ranging from .93 for the SCB factor to .73 for the FS factor. Table 1 shows the mean and standard deviations for the university student sample broken down by gender and suicidal group.

Table 1
Means and Standard Deviations for the Six-Factor RFL

	RFL	SCB	RF	CC	FS	FSD	MO
Mean	4.02	4.81	3.65	3.84	4.59	2.88	2.22
(Male/Female)	(3.86/4.13)	(4.68/4.91)	(3.45/3.79)	(4.34/4.77)	(2.57/3.10)	(2.22/2.21)	(2.77/2.79)
(Non Suicidal/Suicidal)	(4.12/3.63)	(4.98/4.21)	(3.73/3.36)	(4.65/1.43)	(2.88/2.87)	(2.19/2.31)	(2.88/2.44)
Std. Dev.	.73	.86	1.07	1.16	1.45	1.09	1.24
(Male/Female)	(.73/.72)	(.91/.81)	(1.06/1.06)	(1.49/1.40)	(1.02/1.09)	(1.24/1.24)	(1.39/1.40)
(Non Suicidal/Suicidal)	(.70/.74)	(.76/.92)	(1.05/1.10)	(1.43/1.51)	(1.10/1.07)	(1.26/1.17)	(1.40/1.33)

Discriminant Validity

Using the five-item questionnaire, we assigned the participants to one of two subgroups: a suicidal group or a non suicidal group. Participants who obtained a score of 0 were assigned to the non suicidal group; participants who obtained a score of 1 or greater were assigned to the suicidal group. A 2 (gender) x 2 (suicidal groups) multivariate analysis of variance (MANOVA) was performed to investigate discriminant validity. MANOVA showed that the main effect of gender, Wilks $\lambda = .95$, $F(6,398) = 3.40$, $p = .003$, and the main effect of group, Wilks $\lambda = .84$, $F(6,398) = 12.40$, $p < .001$, were significant. The suicidal group scored significantly lower on SCB, $F(1,403) = 63.85$, $p < .001$; RF, $F(1,403) = 6.54$, $p = .01$; and MO, $F(1,403) = 7.53$, $p = .006$. Women scored higher on three measures: SCB, $F(1,403) = 5.69$, $p = .02$; CC, $F(1,403) = 4.01$, $p = .05$; and FS, $F(1,403) = 12.27$, $p = .001$.

The gender by group interaction was not significant, Wilks $\lambda = .98$, $F(6,398) = 1.60$, $p = .15$.

In compliance with the MANOVA results, a discriminant analysis was performed to derive a classification rule for assigning subjects to one of the two predefined groups on the basis of the RFL dimensions. The analysis resulted in one discriminant function, Wilks' $\lambda = .84$, $\chi^2(6) = 69.60$, $p < .001$. Unstandardized discriminant function coefficients were SCB = 1.28, RF = -.01, CC = -.26, FS = -.13, FSD = -.18, MO = -.15, Constant = -5.15, and the unstandardized discriminant function evaluated at group means for non suicidal group were .23, for suicidal group were -.82.

According to the resubstitution estimate, 75.9% of original grouped cases were correctly classified. A less optimistic estimation was 74.4% of cases correctly classified (Hand, 1997).

Discussion

Confirmatory Factor Analysis tested the good fit of Linehan's (1983) six-factor model (RMSEA = .06). The structure of the Italian adaptation of the RFL is composed of six correlated latent factors, representing SCB (24 items), RF (7 items), CC (3 items), MO (4 items), FS (7 items) and FSD (3 items).

The RFL subscales provided evidence of acceptable internal reliability, Cronbach's coefficients ranging from .93 to .73, but as Nunnally & Bernstein (1994) pointed out, while a reliability of .7-.8 is adequate for group research, much relies on the exact test scores when decisions are made about individuals; in this case a reliability of .90 is the bare minimum and a reliability of .95 should be considered the golden standard.

It must be pointed out that a number of RFL subscales are constituted of small item numbers; this affects the repeatability of the results as well as the estimate of the lower bound for alpha (Woodward & Bentler, 1978). The discriminant analysis confirmed a good discriminant validity and that the RFL factors can differentiate subjects with suicide attitudes in a non clinical sample. To sum up, we can consider the RFL an acceptable instrument for group research in university students.

References

- Beck, A.T., Steer, R., & Ranieri, W. (1988). Scale for Suicide Ideation: Psychometric properties of a self-report version. *Journal of Clinical Psychology, 44*, 499-505.
- Bentler, P.M., & Bonnett D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*, 588-606.
- Blaine, G.B., & Carmen, I.R. (1968). Factors related to suicidal behavior among college students and the impact of institutional response. *Journal of College Student Personnel, 23*, 409-413.
- Brener, N.D., Hassan, S.S., & Barrios, L.C. (1999). Suicidal ideation among college students in the United States. *Journal of Consulting and Clinical Psychology, 67*(6), 1004-8.
- Browne, M.W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J.S. Long (Eds.), *Testing structural equation models* (pp.136-162). Newbury Park, CA: Sage.
- Conti, L. (1999). *Repertorio delle scale di valutazione in psichiatria*. Firenze: SEE.
- Cull, J.G., & Gill, W.S. (1982). *Suicide Probability Scale*. Los Angeles: Western Psychological Services.
- Domino, G., Gibson, L., Poling, S., & Westlake, L. (1980). Students' attitudes towards suicide. *Social Psychiatry, 15*, 127-130.
- Floyd, F.J., & Widaman, K.F. (1995). Factor Analysis in the Development and Refinement of Clinical Assessment Instruments. *Psychological Assessment, 7*(3), 286-299.

- Furr, S.R., Westefeld, J.S., McConnell G.N., & Jenkins, M.J. (2001). Suicide and depression Among College Students: A Decade Later. *Professional Psychology: Research and Practice*, 32 (1), 97-100.
- Hand, D.J. (1997) *Construction and assessment of classification rules*. Chichester, England: Wiley.
- Hu, L., & Bentler, P.M. (1999). Cutoff criteria in fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55.
- Linehan, M.M., Goodstein, J.L., Nielsen, S.L., & Chiles, J.A. (1983). Reasons for staying alive when you are thinking of killing yourself: The Reasons for Living Inventory. *Journal of Consulting and Clinical Psychology*, 51, 276-286.
- Neale, M.C., Boker, S.M., Xie, G., & Maes, H.H. (2003). *Mx: Statistical Modeling*. Richmond: Department of Psychiatry. 6th Edition.
- Nunnally, J.C., & Bernstein I.H. (1994). *Psychometric theory*. New York: McGraw-Hill. 3rd ed.
- Osman, A., Gregg, C.L., & Osman, J.R. (1991). Factor structure and reliability of the Reasons for Living Inventory. *Psychological Reports*, 70, 107-112.
- Osman, A., Gregg, C.L., Osman, J.R., & Jones, K. (1992). Factor structure and reliability of the Reasons for Living Inventory. *Psychological Reports*, 70, 107-112.
- Osman, A., Gifford, J., Jones, T., Lickiss, L., Osman, J.R., & Wenzel, R. (1993). Psychometric evaluation of the Reasons for Living Inventory. *Psychological Assessment*, 5, 154-158.
- Range, L.M., & Knott, E.C. (1997). Twenty suicide assessment instruments: Evaluation and recommendations. *Death Studies*, 21, 25-58.
- Rudd, M.D. (1989). The prevalence of suicidal ideation among college students. *Suicide and Life-Threatening Behavior*, 19, 173-183.
- Sims, L., & Ball, M.J. (1973). Suicide among university students. *Journal of the American College Health Association*, 21, 336-338.
- Schotte, D.E., & Clum, G.A. (1982). Suicide ideation in a college population: A test of a model. *Journal of Consulting and Clinical Psychology*, 50, 690-698.
- Schwartz, A.J., & Whitaker, L.C. (1990). Suicide among college students: Assessment, treatment, and intervention. In S.J. Blumenthal & D.J. Kupfer (Eds.), *Suicide over the life cycle: Risk factors, assessment, and treatment of suicidal patients*. Washington, DC: American Psychiatric Press.
- Westefeld, J.S., & Furr, S.R. (1987). Suicide and Depression Among College Students. *Professional Psychology: Research and Practice*, 18(2), 119-123.
- Woodward, J.A., & Bentler, P.M. (1978). A statistical lower bound to population reliability. *Psychological Bulletin*, 85(6), 1323-1326.

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