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## Reliability, Validity, and Factorial Analysis of a Short Version of the Self-Regulation Inventory

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### Abstract

The study examined psychometric properties of a short version of the Self-Regulation Inventory (SRI-S) including reliability, validity, and exploratory factor analysis of the SRI-S in an Iranian students. Six hundred and seventy six Iranian volunteers (294 \males, 382 females) from universities in Iran were included in this study. All participants were asked to complete the SRI-S (Marques, Ibanez, Ruiperez, Moya, & Ortet, 2005), the Eysenck Personality Questionnaire-Revised Short Scale (EPQ-RS; Eysenck, Eysenck, & Barrett, 1985), and the Mental Health Inventory (MHI-28; Besharat, 2009). The results of exploratory factor analysis supported a single general factor of self-regulation and a five factor structure including Positive Actions, Controllability, Expression of Feelings and Needs, Assertiveness, and Well-Being Seeking. The convergent and discriminant validity of the SRI-S were supported by an expected pattern of correlations between the scale and the measures of personality and mental health. All correlation coefficients between the mean scores on the SRI-S and scores of the extraversion, neuroticism, psychological well-being, and psychological distress were statistically significant.

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### 1. Introduction

Self-regulation is a multidimensional construct comprised of cognitive, motivational-affective, social and physiological processes which leave an impression on the active control of purposive actions (Fisher ; Calkins & Fox ; Calkins & Hows, 2004 ; Rothbart ; Ahadi ; Hershey, 2001) . This system bears the responsibility of controlling the execution, attention, inhibition and activation and makes the suppression of unsuitable responses, the initialization and the continuation of essential responses possible.(Posner & Rothbart, 2000).

Grusart-Matick and Eysenck self-regulation inventory (1995) based on its relevance to the main characteristics of personality was devised for the assessment of health-related checking behaviors. The overall findings of the study support a health-disease factor.

Grossarth-Maticek and Eysenck self-regulation inventory (1995) was devised based on this health-disease factor including the examined checking styles of the studies relevant to health and personality. The content analysis of

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105-item self-regulation inventory is in fact a combination of more adaptive checking style which means high positive checking and low avoidance of negative checking (Herman-Stahl, Stemmler & Petersen, 1995)

The initiative studies supported the Krunbakh Alpha and the validity of self-regulation scale. The results of the factorial analysis scale supported the five first level factors and one general second level factor (self-regulation). The five self-regulation scale factors included: positive action (problem solving and facilitating happiness), controllability (internal control attributions), expression of feeling and needs (identification and expression of needs, wishes and feelings), assertiveness (autonomy and self-confidence) and well-being seeking (satisfaction with oneself and others).

The analysis of psychometric characteristics of a short version of self-regulation including reliability, validity and factorial analysis in a sample of Iranian students was the main purpose of this study.

## 2. Metode

### 2.1. Participants and procedure

The statistical universe included 699 volunteer students (men and women) from diverse Iranian universities. The tests were usually taken in classrooms. 23 participants were ruled out from the statistical analysis for not completing the tests; therefore, the number of participants of our sample decreased to 676 (294 men, 352 women).

The age average of all participants was 23.50 with the range of 18 to 27 year old and the standard deviation of 3.43; men age average was 24.00 with the range of 18 to 27 year old and the standard deviation of 3.76 and the women age average was 23.00 with the range of 18 to 25 year old and the standard deviation of 2.87.

### 2.2. Measures

**Self-regulation inventory (SRI-S)**\_self-regulation inventory (Marcus et al, 2005) is a test which comprises 72 items. Krunbach alpha coefficients from 74% to 94% for the 72-item version (Marcus et al, 2005) and from 68% to 84% for the 25-item version approved the internal consistency of the inventory. Marcus et al (2005) reported the retest reliability of the self-regulation to be 87% in a one month period.

**Eysenck's Personality Questionnaire-Revised (EPQ-RS)**\_Eysenck personality questionnaire-revised short scale is a self-evaluation instrument which consists 48 questions. This instrument assesses the three main dimension of personality (extroversion, neuroticism, psychoticism) in a yes or no rating system. Reliability coefficient of subscales in an internal consistency method was reported 88% / 84% in extroversion; 84%/ 80% in neuroticism; 62%/ 61% in psychoticism and 77%/ 73% in lie detector for men and women respectively.

**Mental Health Inventory (MHI-28)**\_ mental health-28 (Besharat, 1388), a short version of 34-question mental health (Besharat, 1385; Wit Wheeler, 1983), is a test which consists 28 questions and measures the psychological well-being as well as the psychological distress with the scores of 1 to 5 in likret's five grade scoring system. Krunbach alpha coefficients for psychological well-being and psychological distress subscales were 94%/ 91% for normal participants and 93%/ 90% for disordered participants respectively. Consistency coefficients for some normal participants regarding psychological well-being and psychological distress were meaningful under this circumstances;  $r = 90\%$  /  $r = 89\%$  respectively and  $p < 0/001$ .

### 3.Results

Table1: The mean and standard deviationa and the results of t-test of scores of self-regulation scales, personality and mental health of male and female students

Variable	Male students		Female students		All of students		P
	mean	Standard deviation	mean	Standard deviation	Mean	Standard deviation	
Self-regulation	96.65	17.05	96.20	18.65	96.39	17.96	0.745
Positive action	21.15	3.64	19.97	3.88	20.48	3.82	0.001
Controbility	18.14	3.42	17.79	3.60	17.94	3.52	0.188
Expression of feeling	18.26	3.37	20.06	3.95	19.28	3.81	0.001
Assertiveness	19.90	3.75	19.44	4.10	19.64	3.95	0.118
Well-being seeking	19.18	3.75	18.91	3.97	19.03	3.78	0.380
Extroversion	8.59	3.08	9.01	3.14	8.83	3.11	0.073
Neuroticism	5.17	2.74	5.47	2.45	5.34	2.58	0.125
Psychoticism	4.22	2.72	3.17	2.17	3.63	2.48	0.001
Betterment	4.91	2.98	6.36	2.83	5.73	2.97	0.001
Mental well being	53.56	11.03	52.07	11.85	52.72	11.55	0.096
Mental helplessness	31.32	8.19	32.39	9.14	31.92	8.66	0.113

It shows the statistical indices of the participants regarding the scores of self-regulation inventory, personality and health. The comparison of the scores of men and women in the self-regulation inventory revealed that the men mean scores in the positive actions subscale was meaningfully higher than that of women’s. The women mean scores in the expression of feelings and needs was meaningfully higher than that of men’s. Other subscales as well as the total score of the self-regulation showed no tangible differences. Validity: the results of the oblique rotation showed that there are five factors relevant to the self-regulation inventory which contributes to the 47.80% of the total variance.

Table 2:The summary results of factor analysis of questions of self-regulation scale

First factor Item	Factor weigh	Second factor item	Factor weigh	Third factor item	Factor weigh	Forth factor item	Factor weigh	Fifth factor item	Factor weigh
1. 6	2. 0.53	3. 38	4. 0.44	5. 2	6. 0.61	7. 7	8. 0.43	9. 20	10. 0.53
11. 41	12. 0.59	13. 55	14. 0.49	15. 10	16. 0.44	17. 11	18. 0.49	19. 39	20. 0.47
21. 67	22. 0.65	23. 63	24. 0.57	25. 18	26. 0.56	27. 61	28. 0.45	29. 50	30. 0.58
31. 70	32. 0.62	33. 72	34. 0.66	35. 26	36. 0.47	37. 76	38. 0.51	39. 53	40. 0.61
41. 75	42. 0.72	43. 105	44. 0.41	45. 90	46. 0.63	47. 78	48. 0.67	49. 85	50. 0.44

It shows the item factorial weighting of each factor. The results of the Pierson’s consistency coefficient revealed that there is a meaningful positive consistency between the scores of participants in the self-regulation subscales and the extroversion indices and the psychological well-being while it has a meaningful negative consistency with the neuroticism and the psychological distress .

### 4. Discussion

The findings of this study approved the psychometric characteristic of the short version of the self-regulation inventory in a sample consisting students. The findings were generally in accord with that of implemented studies relevant to the factorial analysis of a short version of the self-regulation inventory (Ibanez et al, 2005; Marcus et al

2005), but the 25-item Persian version was different in 6 cases in comparison to the Ibanez et al 25-item version (2005). The results support the reliability of a short version of the self-regulation inventory to be used in the future studies.

The consistency coefficients between the scores of the 34 participants were calculated twice for the assessment of the retesting reliability of the self-regulation scale in 4 to 6 weeks intervals. These coefficients were  $r=85\%$  for the self-regulation (total score);  $r=82\%$  for the positive actions;  $r=61\%$  for the controllability;  $r=78\%$  for the expression of feelings and needs;  $r=80\%$  for the assertiveness and  $r=80\%$  for the well-being seeking which were meaningful in  $p<0/001$ . These coefficients are the indicator of the satisfactory retesting reliability of the self-regulation inventor

The present findings however have the special limitation of being introductory regarding their characteristics. This limitation is more tangible in the analysis of different kinds of validity of an inventory which is a continuous process.

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