

## Cognitive Resilience as related to Hardiness across Social Value Orientation among Adolescents

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### Abstract

The paper is a survey type study estimating relatedness between cognitive resilience and hardiness across different social value orientations among adolescents. The study was undertaken with presumption that these variables must have some connection and should be influenced by social value orientation. Participants for the study were one hundred adolescents of secondary schools constituted a snow-ball sample. Social value orientation questionnaire is used to classify the participants in to pro-social, pro-self and competitor categories. Relatedness between cognitive resilience and hardiness are studied independent of SVO, and with SVO. Relatedness is studied in terms of hardiness in general as well as constituents' measures- control, commitment and challenge. Cognitive resilience measure has been developed by the investigator where as measures for hardiness and SVO were obtained form open source, thus were tested for validity and reliability. Findings reveled that more or less cognitive resilience and hardiness are two independent measures at least in case of adolescents. However there is significant relatedness between cognitive resilience and control sub measure of hardiness for pro-self and competitor SVO. No difference has been found in relatedness between two measures across any of the SVO. In conclusion investigator concluded that cognitive resilience and hardiness have no overlapping and relatedness is not affected by SVO of adolescents.

**Key words:** resilience,cognitive resilience, hardiness, psychological hardiness, social value orientation

### Introduction

Successes and failures are part and parcels of human existence. This is no way different in academic performance of children. Failing in academics is no way lesser than a trauma for an adolescent. Some of the students show ability to bounce back from the deep down situation to winning ways and others failed to do so. Psychologists term these bouncing back children as resilient children and the phenomenon is called as 'Resilience'. When it is being studied in context of academic aspect we can more specifically focus on specific form of resilience we call it as 'Cognitive Resilience'. The phenomenon is all the more important due its learnable nature. In fact abilities are inborn but parents, teachers and guardians are definitely can turn these in to capabilities as is in case of cognitive resilience. Here one can assure that resilience can be taught, practiced and mastered as well.

There are studies which establish the linkage between resilience and many other psychological constructs. One of the most probable construct is hardiness, which is very much operational in adolescence. Hardiness as suggested by Kobasa (1979) is a personality trait which helps an individual to perform well in spite of stressful environment. Lately, Maddi (2004, 2008) has characterized hardiness

as a combination of three attitudes (commitment, control, and challenge) that together provide the courage and motivation needed to turn stressful circumstances from potential calamities into opportunities for personal growth. As per the interest of proposed investigation we are interested to understand the role of these three constituent factors in influencing cognitive resilience.

There is hardly any psychological trait which is not influenced by value orientation of an individual, but at the same time values are more meaningful when studied in social context. Social value orientation is a sociological construct which determines the weight attached to social considerations by an individual while taking a decision. It ranges between individualistic (selfish) to altruistic (sacrificial) having cooperative and competitive as other two options. It is hoped that there must be some relation between cognitive resilience and these social orientations. Investigator is interested to understand the relation between cognitive resilience and hardiness in respect of dimensions of social value orientation.

## Emergence of the Problem

Cognitive resilience has been of recent interest for finding its constructs and relatedness to other psychological constructs. Hardiness has been equated many times to resilience and same has been denounced by many psychologists. At the same time it seems that both resilience and hardiness have something in common in terms of constructs and operational features. Hardiness is more prominent a factor in adolescence so investigator became interested to find the relationship between these two variables. The relation actually eliminates the one or merges in another for the sake of implementing in shaping personality of individuals for attaining resilience. Social value orientation has significance for its relation with cognitive resilience due to the fact that resilience is only significance if it has social context. Relation of cognitive resilience and hardiness (also components of hardiness) in terms of SVO should be an interesting proposition for undertaking the study.

## Research Design & Methodology

The participants are classified in to three categories namely- pro-social, pro-self and competitor using SVO questionnaire. Data is collected for hardiness and cognitive resilience in respect of these categories. In respect of these categories resilience and hardiness are correlated. These correlations are assessed for significance and are compared for significant difference to understand the impact of SVO on correlation.

## Objectives

- To construct and standardise Cognitive Resilience Scale
- To standardise Hardiness Scale
- To standardise Social Value Orientation (SVO) questionnaire
- To find relatedness between Cognitive Resilience and Hardiness
- To find relatedness between Cognitive resilience and hardiness in terms of Social Value Orientation (SVO) classification.
- To compare the relatedness between different sets of measures as per classification of SVO.

## Hypotheses

The proposed investigation has been conducted to test the following hypotheses for adolescent population.

H<sub>1</sub> Cognitive resilience is significantly related to hardiness in adolescents.

H<sub>2</sub> Cognitive resilience is significantly related to hardiness for pro-social (SVO).

H<sub>3</sub> Cognitive resilience is significantly related to hardiness for pro-self (SVO).

H<sub>4</sub> Cognitive resilience is significantly related to hardiness in Competitor (SVO).

H<sub>5</sub> There is no difference in relatedness of cognitive resilience and hardiness across different variation of SVO components.

## Sample of the Study

One hundred secondary school students constituted the sample. The sample was snow-ball type in which there is combination of convenience and randomisation. Investigator chose two adolescents at his convenience and asked them to name two more participants who can cooperate in data collection. Same procedure was applied to get four more participants followed by eight and so on. In this way a chain of participants was created which was proved to be fairly representative sample of the population.

## Construction and Standardization of Likert Type Cognitive Resilience Scale

Following steps were taken

- Theoretical Constructs for the concept
- Framing of items
- Selection of items
- Organization of items
- Distribution of items
- Try out of the scale
- Establishing Reliability of the scale

**Scoring of the Scale:** The scale is in five points Likert format, contains both positive and negative items. Positive items are scored as 5 for Strongly Agree (SA), 4 for Agree (A), 3 for No Opinion (N), 2 for Disagree (DA) and 1 for Strongly Disagree (DA) and negative items are scored exactly in reverse order i.e. 1 for Strongly Agree (SA), 2 for Agree (A), 3 for No Opinion (N), 4 for Disagree (DA) and 5 for Strongly Disagree (DA).

## Description and Standardization of Hardiness Scale by S. O. Kobasa, 1998

The author of the scale is one of the inventors of the concept hardiness. It has 12 items in total consisting of three components namely- Control, Commitment and Challenge represented by four items for each component. The reliability of the scale has been established by test re-test method. The time gap was fifteen days and gratifying value of  $r = .79$  has been found. Validity of the scale was established by using contrast group method. A statement "I believe I am have ability to bounce back from failures" was used to obtain two groups answering in 'Yes' and 'No'. Data obtained in the first phase for these contrast groups was put to t-test. Observed t-value ( $t = 4.63$ , at  $df = 98$ ) was found to be greater than table value, indicating that scale has ability to distinguish groups of varying hardiness character, hence should be considered as valid instrument to assess hardiness.

### Scoring of the Scale

To compute the three component scores, following equations has been used (the numbers are the question numbers):

Control score:  $(\#1 + \#7) - (\#2 + \#8) =$  \_\_\_\_\_

Commitment score:  $(\#3 + \#9) - (\#4 + \#10) =$  \_\_\_\_\_

Challenge score:  $(\#5 + \#11) - (\#6 + \#12) =$  \_\_\_\_\_

Total Hardiness Score: Control + Commitment + Challenge:

#### Interpretation of Score

Hardy Personality: 10 to 18 points

Moderate Hardiness: 0 to 9 points

Low Hardiness: below zero

### Social Values Orientation (SVO) Questionnaire by Van Lange, P. A. M. (1999)

A 9-item measure of one's social values orientation – defined as one's stable preferences for distributions of important resources between others and oneself. The questionnaire aims to divide respondents into one of three categories: Altruist (or Pro-social), Egoist (Pro-self), and Competitor, based on their responses. Each item asks participants to choose among 3 hypothetical self-other resource (money) distribution options. The altruist response is the one where the participant maximizes the combined payoff for other and self. The egoist response is the one where the participant maximizes the payoff for self and disregards the payoff for other. The competitor response is one where the participant maximizes the difference between the payoff of other and self.

#### Scoring of the Questionnaire:

- A person is considered to be altruistic if he or she has 6 or more pro-social responses.
- A person is considered to be egoistic if he or she has 6 or more egoistic responses.
- A person is considered to be a competitor if he or she has 6 or more competitor responses.
- Participants who do not have at least 6 of one type of response are usually not counted in the analyses.

#### Standardization of the SVO Questionnaire

As the scale is developed elsewhere it was needed to be standardised under Indian conditions. As the scale is very small one test-re test method of reliability was used. The time gap was fifteen days and gratifying value of  $r = .82$  has been found, which established reliability of the scale. Validity of the scale has been established by agreement between two observations. It has been done by correlating the responses of selected sample (five participants) obtained in the written form and when interviewed for the same.

### Testing of Hypotheses

**Table 2: Correlation between cognitive resilience and components of hardiness**

Variable	N	r <sub>Cog. Resilience- Control</sub>	r <sub>Cog. Resilience-Commitment</sub>	r <sub>Cog. Resilience- Challenge</sub>	r <sub>Cog. Resilience- Hardiness</sub>
Cognitive Resilience	100				
Hardiness	100	0.0950	0.0746	-0.0601	0.0561

All the four correlation values have been found to be much lower than table values (table values:  $r_{0.05}=0.168$ ,  $r_{0.01}=0.181$ ;  $df = 198$ ) hence are insignificant, the values obtained should be attributed to matter of chance only. This means cognitive resilience is not significantly related to any of the three components (Control, Commitment & challenge) as well as hardiness in general.

**Table 3: Correlation between cognitive resilience and components of hardiness in respect of Pro-social SVO**

Variable	N	$r_{\text{Cog. Resilience-Control}}$	$r_{\text{Cog. Resilience-Commitment}}$	$r_{\text{Cog. Resilience-Challenge}}$	$r_{\text{Cog. Resilience-Hardiness}}$
Cognitive Resilience	32	0.0756	-0.0165	-0.1113	-0.0250
Hardiness	32				

All the four correlation values have been found to be much lower than table values (table values:  $r_{0.05}=0.246$ ,  $r_{0.01}=0.320$ ;  $df = 62$ ) hence are insignificant, the values obtained should be attributed to matter of chance only. This means cognitive resilience is not significantly related to any of the three components as well as whole scale of hardiness in respect of pro-social SVO.

**Table 4: Correlation between cognitive resilience and components of hardiness in respect of Pro-self SVO**

Variable	N	$r_{\text{Cog. Resilience-Control}}$	$r_{\text{Cog. Resilience-Commitment}}$	$r_{\text{Cog. Resilience-Challenge}}$	$r_{\text{Cog. Resilience-Hardiness}}$
Cognitive Resilience	28	0.3693**	0.1823	0.0257	0.3181*
Hardiness	28				

Out of four correlations two has been found to be significant and other two as insignificant (table values:  $r_{0.05}=0.264$ ,  $r_{0.01}=0.342$ ;  $df = 54$ ). This means in case of students having pro-self SVO show significant correlation between cognitive resilience and hardiness also there is strong relation between cognitive resilience and control factor of hardiness. Actually significant 'r' for total scale is due to 'control' constituent scale of hardiness.

**Table 5: Correlation between cognitive resilience and components of hardiness in respect of Competitor SVO**

Variable	N	$r_{\text{Cog. Resilience-Control}}$	$r_{\text{Cog. Resilience-Commitment}}$	$r_{\text{Cog. Resilience-Challenge}}$	$r_{\text{Cog. Resilience-Hardiness}}$
Cognitive Resilience	35	0.3042**	0.1296	-0.0273	0.1656
Hardiness	35				

Out of four only in one case 'r' has been found to be significant (table values:  $r_{0.05}=0.233$ ,  $r_{0.01}=0.303$ ;  $df = 68$ ). This means in case of persona having competitor SVO, cognitive resilience is strongly related with control factor of hardiness.

#### Comparison of relatedness across components of hardiness

Calculation of C. R for difference of correlations has been calculated by using the formula given below.

$C. R = \frac{r_1 - r_2}{\sqrt{[1/(N_1 - 3) + 1/(N_2 - 3)]}}$ , for 'r' greater than .25 Corresponding Fisher's coefficient has been used.

**Table 6: CR values for Comparison of relatedness across components of hardiness**

	$r_{\text{Cog. Resilience-Control}}(1)$	$r_{\text{Cog. Resilience-Commitment}}(2)$	$r_{\text{Cog. Resilience-Challenge}}(3)$
$r_{\text{Cog. Resilience-Control}}(1)$	0.0000	0.1420	1.0801
$r_{\text{Cog. Resilience-Commitment}}(2)$		0.0000	0.9380
$r_{\text{Cog. Resilience-Challenge}}(3)$			0.0000

(Table values:  $CR_{0.05}=1.97$ ;  $CR_{0.01}=2.60$ ,  $df=198$ )

**Table 7: CR values for Comparison of relatedness across components of hardiness for Pro-social SVO**

	$r_{\text{Cog. Resilience-Control}}(1)$	$r_{\text{Cog. Resilience-Commitment}}(2)$	$r_{\text{Cog. Resilience-Challenge}}(3)$
$r_{\text{Cog. Resilience-Control}}(1)$	0.0000	0.3684	0.7476
$r_{\text{Cog. Resilience-Commitment}}(2)$		0.0000	0.3792
$r_{\text{Cog. Resilience-Challenge}}(3)$			0.0000

(Table values:  $CR_{0.05}=2.00$  ;  $CR_{0.01}=2.66$ ,  $df= 62$ )

**Table 8: CR values for Comparison of relatedness across components of hardiness for Pro-self SVO**

	$r_{\text{Cog. Resilience-Control}}(1)$	$r_{\text{Cog. Resilience-Commitment}}(2)$	$r_{\text{Cog. Resilience-Challenge}}(3)$
$r_{\text{Cog. Resilience-Control}}(1)$	0.0000	0.3693	0.0257
$r_{\text{Cog. Resilience-Commitment}}(2)$		0.0000	0.1823
$r_{\text{Cog. Resilience-Challenge}}(3)$			0.0000

(Table values:  $CR_{0.05}=2.00$ ;  $CR_{0.01}=2.66$ ,  $df= 54$ )

**Table 9: C. R for Correlations between cognitive resilience and hardiness for Competitor SVO**

	$r_{\text{Cog. Resilience-Control}}(1)$	$r_{\text{Cog. Resilience-Commitment}}(2)$	$r_{\text{Cog. Resilience-Challenge}}(3)$
$r_{\text{Cog. Resilience-Control}}(1)$	0.0000	0.2760	1.7891
$r_{\text{Cog. Resilience-Commitment}}(2)$		0.0000	1.5130
$r_{\text{Cog. Resilience-Challenge}}(3)$			0.0000

(Table values:  $CR_{0.05}= 2.00$ ;  $CR_{0.01}= 2.65$ ,  $df = 68$ )

None of the difference between two correlations could reach the table value, hence are found to be insignificant meaning thereby there no difference in relatedness between cognitive resilience and the components (control, commitment, challenge) of hardiness, with respect to three social value orientations (pro-social, pro-self, competitor).

## Findings and discussion

- Cognitive resilience is not influenced by hardiness in case of adolescents. This means two measures are independent which is contrary to the expectation. As we imagined that the two measures seems to have same nature as both amounts to a kind of toughness.
- Cognitive resilience is not related to constituent measures of hardiness- control, commitment and challenge. This is just supporting the previous finding, again an unexpected result.
- Cognitive resilience is not related to hardiness irrespective of social value orientation of adolescents (i.e. adolescents having pro-social, pro-self and competitor SVO orientations have similar relatedness between cognitive resilience and hardiness).It means SVO has no effect on relatedness and we observed similar result as in case of previous findings.
- Cognitive resilience is not related to constituent measures of hardiness (control, commitment, challenge) when adolescents have pro-social social value orientation.
- Cognitive resilience is strongly related to Control constituent measure of hardiness when adolescents have pro-self social value orientation. It is interesting and expected result as

adolescent having pro-self SVO should have control over one's activities and should be resilient as well.

- Cognitive resilience is strongly related to Control constituent measure of hardiness when adolescents have competitor social value orientation. It is similar result as in perviouscase. Also competitor orientation is closeto pro-self than pro-social SVO.
- Relatedness between cognitive resilience and hardiness (as well as its constituent measures- control, commitment, challenge) does not differ significantly irrespective of social value orientation-pro-social, pro-self, and competitor. It is expected result as most of the 'r' values were not high enough to cause any significant difference among them.

## Educational Significance of the Study

Investigated research problemis of psychological nature with strategic planning guidance ability for enhancing academic output of the students. Since cognitive resilience is a learnable entity we are trying to find the related variables which could influence it. A cognitively resilient child may be by reason of hardiness or without it. Our results support the later hypothesis. Since resilience or non resilience does not occur in vacuum, we thought it might be influenced by sociological construct like Social Value Orientation. But our results indicate that there is no relatedness between cognitive resilience and hardiness and relation is not influenced by social value orientation among the adolescents. It may be concluded that adolescents may be resilient without having character of psychological hardiness and vice-versa. Also social value orientation is an independent variable and has no influence on relatedness of cognitive resilience and hardiness.

## Threads for further research

Although this research peace has been conducted on small sample with limited resources, but still has been able to deliver new directions for further research. On the basis of findings following directions can be followed for framing new research problems.

- Results suggest that problem should be replicated with bigger data, refined statistical techniquesand more comprehensive tools to establish the results beyond doubt.
- The study can be repeated with other age groups to establish the findings in general form for variables irrespective of age group.
- More of psychological and sociological variables could be correlated with cognitive resilience and psychological hardiness. Some of the variables can be- emotional intelligence, mental health, well-being, social maturity and the like.
- Impact of these variables could be studied on academic aspects like-academic achievement, achievement motivation, creativity and the like.

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