

## Development of Psychometric Properties in Self-Efficacy Scale in Hindi Language (SE Scale in Hindi Version)

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### ABSTRACT

The main purposes of current research evaluate the psychometric properties of the self efficacy scale in the Hindi language. Survey type research and correlational design were use. The self-efficacy scale was administered on the adolescent population (N=400, Age group 14-18 years) of Raipur City, Chhattisgarh, India. The psychometric properties of the scale were established by computing Exploratory Factors analysis, reliability (Cronbach's Alpha) and validity. The result of the exploratory factor analysis in varimax rotation model reveals that 10 items were significantly loaded in two factors out of 10 items. Each items of the scale were highly discriminate. The reliability of self-efficacy scale Cronbach's Alpha is 0.80. The psychometric properties of the self-efficacy scale confirm that it is reliable and valid measure of self-efficacy among adolescent with age range of 14-18 years.

**Keywords:** *Self-Efficacy, Reliability, Validity.*

The concept of self efficacy was first derived by Albert Bandura and has defined that self efficacy as belief in one's ability to succeed in specific situation or accomplishes a task. The self-efficacy is playing a major role in person daily life such as person's have one approaches goals, tasks and challenge (Ormod, 2006).

Some psychologist have studied self efficacy from several perspectives such as development pathways, dynamics of self efficacy and lack therefore in many different settings, the interaction between self efficacy and self concept and habits of attribution that contribute to or detract from self efficacy (Wikipedia).

Self efficacy is affected in every area of human endeavor such as social, educational, psychological and physical. Luszczynska & Schwarzer (2005) argued that self efficacy

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determining the belief a person holds regarding his or her power to affect situations, it is strongly influences both the power a person actually has to face challenge competently and the choices a person's is most likely to make. These affect are particularly apparent and compelling with regard to behaviors is affecting health.

Judge et al (2002) argued the concepts of locus of control, neuroticism, generalized self-efficacy (which different from Bandura theory of self-efficacy) and self-esteem measured the same.

### *Objective*

- The main objective of the current study is evolution of psychometric properties of self efficacy scale adapted in Hindi language on Indian context.

## **METHOD**

<i>Research Design-</i>	Correlational research design used.
<i>Sampling process-</i>	Purposive sampling technique used.
<i>Size of Sample -</i>	Total 400 adolescent participants were included.
<i>Measures –</i>	Self-efficacy is measured on the self-efficacy scale, the self-efficacy scale was developed by Sonekar & Shrivastava (2009).

### *Measure*

- **Self-efficacy measurement scale (SEM Scale)**

SEM scale originally developed by Schwarzer (1992), and translated in Hindi language by Sonekar & Shrivastava (2009). The basic logic of construct in self-efficacy scale, it is assessed that perceived of self-efficacy reflects on the optimistic self-belief of the people. The perceived self-efficacy facilitates good-setting, effort investment, persistence in face of barriers and recovery from setbacks. It can be regarded as a positive resistance resource factor. Scale consists of ten items. Each item refers to successful coping and implies on internal stable attribution of success.

### *Statistical analysis-*

Aim of the current study evolution of the psychometric properties of self efficacy scale in Hindi language, for this purpose various statistical analysis done viz. exploratory factor analysis (EFA, construct validity), item-analyses (item discrimination and inter-item correlation and inter-factor correlation) inter consistencies of Cronbach's Alpha for content validity and reliability of the self-efficacy scale.

## **RESULT**

Obtained the result were aim of current study, whether the evolution of psychometric properties in self-efficacy scale in Hindi language. For this purpose we are done in exploratory factor analysis, item-discrimination, item reliability, and correlation for

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convergent and concurrent validity. Obtained the results were presented in given parts of study.

### *Item reliability of self efficacy scale-*

Translated items were analyzed for their appropriateness and reliability. For this purpose scale were administered on 400 students, and Alpha factoring analysis was done. The Alpha factoring method of factor analysis is suitable for item reliability (Nunnally, 1960). Obtained loading of the Cronbach's Alpha is given table.

*Table shown that item wise reliability of self efficacy scale*

Item No.	corrected item total correlation	Cronbach's alpha
1	.406	.724
2	.359	.730
3	.359	.730
4	.416	.722
5	.483	.712
6	.458	.716
7	.404	.724
8	.350	.721
9	.420	.726
10	.390	
<b>Overall Cronbach's Alpha</b>		<b>0.80</b>

Observation of the above table indicates that all obtained Cronbach's Alpha were highly significant, it mean all items are reliable; and overall reliability of self efficacy scale is .80, it is clear them that self efficacy scale is reliable instrument for assessment in persons self-efficacy.

### *Item analysis of scale (discrimination power of items)*

Score of self efficacy scale for 400 participants was done. On the basis of total scores, subjects were arranged in descending manner. Number of 100 higher scorers from the descending list was identified as subject of upper extreme group while 100 lower scorers were identified as the subject of lower extreme group, and middle 46% subjects (i.e. 181) were excluded for further analyses.

Identified extreme groups were compared on each item of the scale obtaining the discrimination power. For this purpose item wise t – ratio were calculated between the two groups. Obtained t-ratio are presented in table

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*Table showing that mean, standard deviation (S.D.) of lower and upper extreme group on different items of self-efficacy scale along with t-ratio*

Component	Lower Extreme Group		Upper Extreme Group		t-Value
	Mean	SD	Mean	SD	
1.	2.72	1.28	3.87	0.47	8.43**
2.	2.53	1.06	3.46	0.87	6.79 **
3.	2.32	1.15	3.33	0.83	7.08**
4.	2.48	1.14	3.72	0.59	9.67**
5.	2.26	1.07	3.63	0.59	11.20**
6.	2.21	1.12	3.67	0.58	11.68**
7.	2.28	1.13	3.68	0.62	10.89**
8.	2.22	1.15	3.42	0.68	8.98**
9.	2.17	1.08	3.47	0.76	9.80**
10.	2.40	1.08	3.63	0.57	10.05**

Observation of the above table indicates that all obtained t-ratio were highly significant, it mean these items discrimination power is sufficient for the discriminate validity of self efficacy measurement.

***Convergent validity of self-efficacy scale***

**Inter item correlation between factor one (Convergent Validity)**

Component	1	2	3	4	5
1	1.000	.303	.224	.193	.300
2		1.000	.217	.245	.246
3			1.000	.295	.208
4				1.000	.319
5					1.000

***Inter item correlation between factors two (Convergent Validity)***

Component	1	2	3	4
5				
1	1.000	.243	.214	.285
.225				
2		1.000	.311	.258
.255				
3			1.000	.244
.227				
4				1.000
.248				
5				
1.000				

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***Exploratory factor analysis for the criterion of construct validity-***

Exploratory factor analyses (EFA) assess the criterion of construct validity (Nunnly, 1960; Kaiser, 1964; Sing, 1992).

To examine whether selected items are related to the scale factors, factor analyses was done. For this purpose, the preliminary test was administered on 400 tribes and non-tribe male and female student were selected. Obtained scores of the subjects were analyzed employing principle component method for factor analysis. Only two factors were extracted. Varimax rotation was done to clarify the loading on these factors. Obtained loadings are given table-

***Table showing initial statistics regarding self efficacy scale***

Component	Communalities	factors	Eigen value	% of Var.	Cum. % Of Var.
1.	1.000	1	2.847	31.630	31.630
2.	1.000	2	1.037	11.524	43.153
3.	1.000	3	.887	9.852	53.005
4.	1.000	4	.843	9.363	62.368
5.	1.000	5	.803	8.934	71.303
6.	1.000	6	.735	8.169	79.472
7.	1.000	7	.689	7.659	87.131
8.	1.000	8	.615	6.838	93.969
9.	1.000	9	.543	6.031	100.00

***Rotated factor matrix regarding self efficacy***

Component	factor 1	Factor2
1	.469	
2	.493	
3	.402	
4	.492	
5	.516	
6		.310
7		.445
8		.591
9		.392

\*values less than .30 were omitted (Kaiser, 1960), (DiStefano, Zhu & Mindrila, 2009)

Initial statistics reveal that eigenvalue of two factors were more than one, and therefore, two factors were extracted. Since loading of the 9 items on the two factors were clearly, varimax rotation was performed. Five items had significant loading on factor one, there were four items showing significant loadings on factor two.

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### Concurrent validity of self-efficacy scale-

Table showing that the inter correlation between factor 1 and factor 2

Correlation	factor 1	factor 2
Factor 1	1.000	.510
Factor 2		1.000

### CONCLUSION

Finding the result that concluded the psychometric properties of the self-efficacy scale confirm that it is reliable and valid instrument, which could be used for the assessed in self-efficacy on adolescent population for the age group of 14-18 years.

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### Conflict of Interest

The authors colorfully declare this paper to bear not conflict of interests

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