

# Study on Reliability and Validity Scale for Adolescent Behaviour

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**Abstract:** *This article describes the development and validation of a 56-item self-administered questionnaire which aims to measure adolescent behavioural outcomes (adolescent violent tendency, adolescent health concerns, adolescent social adjustment and adolescent sexual vulnerability) with the aim of detecting early point of intervention among the three major groups. Items were generated from 16 focus group discussions, literature review and theory. This was followed by, repeated measures, taken from, in and out-of school adolescents. The questionnaire was acceptable to the adolescents. It was reliable (test-retest and split-half). Comparisons with independently gathered interview data showed that it had criterion-related validity.*

**Keywords:** Adolescent; behavioural-outcomes-scale; development; validation.

## 1. Introduction

The term puberty applies to this period of life cycle when sexual and reproductive maturation becomes evident. Unlike infants and young children, adolescents experience the dramatic changes of puberty through a sense of consciousness and self-awareness. So not only do they respond to the biological changes but their psychological states also have a bearing on those changes (Boxer et al., 1983). Biologically, puberty occurs in response to changes in the body's hormone system. The hormonal stimulations on reproductive organs also stimulates behavioural changes such as being inquisitive about the growth and development of the body, experimenting with reproductive organs, sensitivity to appearance and body posture, aggressive tendency and increased conflict with parental values. This implies that though puberty has a biological foundation it also has social and psychological significance (Stattin and Magnusson, 1990). The psychological conditions of the adolescents also aid the ways in which they view themselves, those around them, and may give some forewarning of the nature of adolescent out-comes.

There are expectations to live up to in the family, school, among peers and in the larger society while at the same time adjusting to the hormonal changes taking place in the body. In essence, the issues faced by the Indian adolescent in this transition period may include development of adult body, taking care of self, making decisions, starting to do things alone, coping with self awareness, agonies of indecision, experimentation, risky sexual behaviour, teenage marriage, difficulties in establishing own identity as opposed to that prescribed by family or society, development of economic independence, formation of ideas and believes-idealism, self-discipline and need to establish sense of autonomy or control. For the girl child, difficulties over what is role or image of adult woman, sees autonomy and femininity as irreconcilable while many engage in social behaviours that can lead to serious long-term difficulty; many more are vulnerable for future problems. Thus, adolescence begins in biology and ends in culture (Conger and Peterson, 1984) because both the family and society have their expectations for the adolescent.

The adolescent period is a social and psychological process the outcome of which may either be positive or negative. When negative it may lead to early onset of antisocial behaviour. For example, studies have shown that this period in children has been associated with a time when adolescents feel tension between dependency on their parents and the need to break away, indulge in risk taking, exhibit restlessness, impulsive behaviour, depressive symptoms, involvement with older and more influential adults, engage in age-inappropriate activities, experience difficulties in school, exhibit antisocial or delinquent tendency, use alcohol, drugs and tobacco, have fewer years of schooling, indulge in early sexual activity, and teenage pregnancy (Miller and Moore, 1990; Sonenstein et al., 1991; Ibeagha and Oladimeji, 1998; Osinowo, 1999). Pubertal children have been studied along general health problems, parental status (Onocha et al., 1998), and also at different times such as violence (Hill et al., 1994) deviant behaviour (Osinowo, 1999) and communication inadequacy (Onocha et al., 1998) but there is no consensus in India about the constancy on what should be a positive or negative adolescent outcomes scale.

The questionnaires used for these studies did not address the totality of adolescent behavioural outcomes and may not be sensitive to the important psychological changes that determine positive or negative outcomes. The instrument may not also be applicable in for use within the major ethnic groups in India. Hence there is a need to develop a scale that could be of wide acceptance within the three major ethnic groups in India to evaluate the detection of early of deviant behaviour with a view to provide effective intervention strategy. The aim of this study is to develop an indigenous adolescent outcomes scale that will serve as an assessment and remedial tool for early intervention among the three major groups—Hindu, Muslim and Sikh.

Adolescent period of life is associated with increased risk behaviours in both reproductive health and general behavioural patterns of the adolescent. It seems worthwhile to study and bring out indices of items indicating adolescent outcomes. The scores obtained by the child would indicate the nature of outcomes whether positive or negative and dictate the type of intervention.

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## 2. Method

Items were first generated to construct the adolescent behavioural outcomes scale. Reliability and validity of the scale was then determined.

### Generation of Items

Items were generated from literature review and theory. In addition to these, focus group discussions comprise of mothers, fathers and children among the three Indian major groups— Hindu, Muslim and Sikh. The discussions were centred on what they have observed as the behavioural patterns of early adolescents today. Adolescent groups were also included to air their views on their observations on the trend of behavioural patterns and the problems they have with their parents. From the outcome of the focus group discussion, literature review and theory, a list of positive and negative adolescent behavioural characteristics were generated.

## 3. Reliability and Validity

**Reliability of the Scale:** The adolescent behavioural outcomes scale was administered twice to randomly selected 30 out-of-school adolescents who still reside with their parents (mean = 14.95, SD = 1.2) within an interval of six weeks between the two administrations. The interval was chosen between the occasions because the gap is considered hopefully long enough to minimise recall of previous responses and short enough to preclude too great a change in the participants. The test-retest reliability of the scale was found to be .65. The scale was also administered twice to 50 randomly selected secondary school students (mean = 15.6, SD = 1.1) within an interval of six weeks between the two administrations. The test-retest reliability coefficients are considered adequate for this scale when considering the interval of administration within which some behavioural changes are likely to undergo changes due to factors within and in the outside environment of the child. The test-retest reliability of the sub-scales of the Adolescent Behavioural Outcomes Scale is summarised in Table 1.

**Validity of the Scale:** The face validity of an instrument is established when the items in the instrument are clearly and obviously related to the phenomenon being measured, when the items are relevant to the stated condition or purpose of the instrument and when the items are based upon whatever knowledge is available at the time of construction (Breakwell et al., 1995). The items of the Adolescent Behavioural Outcomes Scale satisfy these conditions. Content validity of the items was further established by using expert technique (Nunnally, 1978). Item pool consisting of 75 items was presented to four experts in social and developmental psychology. All items that received 100% support were retained. The resulting 61 items were put in questionnaire form and administered to 120 participants in a pilot study.

**Construct Validity of the Scale:** The construct validity is the extent to which an instrument measures a theoretical construct or trait. The factor analytic method among other methods of establishing construct validity was considered relevant. It assesses the extent to which each item of the

instrument cluster together around one or more dimensions. Further analyses was therefore carried out to determine the psychometric properties and to improve on the construct validity of the scale. Principal component analysis followed by varimax rotation yielded 4 factors with loadings ranging from least item loading of .31 to highest item loading of .87 (see Table 2). A total of 56 items were so selected for the scale. The internal consistency of the scale was established utilising the Crombach alpha and a reliability of .84 was obtained. The split-half reliability using the spearman-brown formula yielded a coefficient of .68 and the correlation between forms of .51 was obtained. The 4 factors loaded with eigen values of above 1.00. The least item loading of .31 satisfy the criterion of .30 for accepting structure coefficient (Pedhazur, 1982). Factor 1-adolescent violent tendency subscale has 14 items which loaded from .43 to .85. Factor 2-adolescent health concern subscale has 17 items which loaded from .48 to .79. Factor 3- adolescent social adjustment subscale has 9 items which loaded from .51 to .82 while factor 4 – adolescent sexual vulnerability subscale which loaded from .35 to .74 has 16 items. Correlation between each dimension is as shown in Table 2 (Also see Appendix II for items on each subscale).

The convergent validity of the Adolescent Behavioural Outcomes Scale was established by correlating the scores with scores on student problem inventory which is a well known inventory (Bakare, 1986). The convergent validity measure showed a significant positive relationship ( $r = .60, p < .01, N = 120$ ). The student problem inventory has been shown to discriminate between problem and non-problem students in the Indian setting. A high score on the scale represents negative adolescent outcome while a

**Table 1: Correlation coefficients between occasions (test-retest) and between halves of each sub-scale of adolescent outcomes**

Sub -scales	Test-rest reliability (n = 30)	Test-retest reliability (n = 50)
1 Adolescent Violent Tendency	.53	.55
2 Adolescent Health Concerns	.60	.50
3 Adolescent Social Adjustment	.82	.71
4 Adolescent Sexual Vulnerability	.67	.81

All the correlations are significant ( $P < .001$ )

**Table 2: Correlation matrix showing correlation between subscales of pubertal children outcome scale**

	1	2	3	4
1 Adolescent Violent Tendency	-	-	-	-
2 Adolescent Health Concern	.525**	-	-	-
3 Adolescent Social Adjustment	.485**	.316**	-	-
4 Adolescent Sexual Vulnerability	.385**	.640**	.402**	-

\*\*Correlation is significant at the 0.01 level (2-tailed)

low score on the scale represents positive adolescent outcome. Response format of yes (2) or no (1) was adopted.

#### 4. Discussion

This study has been able to describe the development and factor structure of the Adolescent Behavioural Outcomes Scale. The Adolescent Behavioural Outcomes Scale has been developed to assess four of the adolescents behavioural outcomes: violent tendency, sexual vulnerability, adolescent health concerns and social adjustment among the three major Indian groups. The purpose is to help identify areas of problem behaviours among the adolescents within the different ethnic groups and to evaluate how far India has gone in the effective utilization of the various policies for human development. Furthermore, the Adolescent Behavioural Outcomes Scale is an attempt to provide a scale of measurement for evaluation so as to develop appropriate intervention strategies for use among the adolescents within the three major groups in India. This is in line with the wave of increase in deviant behaviour as observed by Osinowo (1999), violence, (Hill et al., 1994), general health status and deviance arising from parental status (Onocha et al., 1998).

The results presented show strong evidence of validity and reliability. The scale will therefore be useful to identify the behavioural outcomes of the pubertal child in the Indian culture. It will also serve as a vital instrument in the parenting process, in intervention programmes among Indian families and in the early detection and prevention of maladjustment behaviour in children. Finally, it will contribute to adjustments in the Government policy formulation on children and families.

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**APPENDIX**  
**Adolescent Behavioural Outcome Scale**

	<i>Factor Loadings</i>			
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1. I am out of school		.489		
2. Failing in school				.517
3. Goes out with 'sugar daddy'		.729		
4. Receives gifts from different men				.490
5. Has more than one sexual partner				.667
6. Makes a living by self	.458			
7. Lives independent of parent				.350
8. Goes from one career to another				.522
9. Yet to decide what career to pursue in life				.487
10. Does not see anything wrong in telling lies to escape punishment				.726
11. Fights				.313
12. Smokes		.576		
13. Drinks alcohol				.314
14. Lives on the income made by self		.596		
15. Answers parents back	.490			
16. I do not like being given instructions	.337			
17. Expecting a baby (pregnant)			.651	
18. Has had abortion				.410
19. Doing well in school				.542
20. Assisting in parent's business			.685	
21. Can stand on my own			.510	
22. My parents do not seem to accept my group of friends			.545	
23. Associates with peers of good behaviour			.528	
24. I am successful in parent's type of business			.877	
25. I am making steady progress in school			.414	
26. I have acquired only the First Primary School Certificate			.557	
27. Relates well with others			.829	
28. Copes with difficult challenges			.585	
29. School makes me unhappy		.631		
30. Engages in un-straightforward business deals		.488		
31. Could be deceitful		.620		
32. Lacks self control		.671		
33. Loses temper easily		.483		
34. Feels that life is miserable		.795		
35. Can be violent can fight back by all means	.604			
36. Takes part in riots	.606			
37. Stays away from workplace or school	.745			
38. Could tell lies to get what I need	.853			
39. Selling my things in exchange for money	.844			
40. Carried a weapon such as a gun or knife in the past 12 months	.813			
41. Likes pornographic materials	.803			
42. Is giving parents a lot of problems	.539			
43. My parents worry a lot about me	.431			
44. Does not seem to like listening to my parent's advice		.530		
45. Likes going to night parties	.630			
46. I am sometimes perceived to be difficult by my parents	.500			
47. I am not really interested in doing anything for now		.597		
48. I do not like waking up in the morning		.716		
49. I am unhappy		.756		
50. I am already married by first menstruation		.588		
51. I have a child by age of 15 years	.000	.529		
52. I am preparing to get married				.491
53. I am no more receiving care from any parents				.558
54. I am pursuing a career				.749
55. I am doing well as an apprentice				.633
56. I am able to take decision and stand on it among friends			.660	