Development and Standardisation of Adolescent at Risk Screening Scale (ARSS)

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Abstract

With the dearth of adolescent at risk measurement scales in India and the need for the same in the context of the rising popularity of at risk adolescent programmes, a culture-specific scale to screen at risk adolescents is imperative. With this background, the current study aimed to develop and standardise a scale to screen at risk adolescents in India. The objectives were to—(i) construct a comprehensive scale for screening at risk adolescents; (ii) select and test the measurability of items in the at risk adolescent's scale and; (iii) test the reliability and validity of the scale. The study was predominantly following the scale design. It was conducted in three main stages—scale development, field testing of the scale and standardisation. A total of 100 adolescents from Grades VII-X, belonging to different backgrounds, participated in the study. The age group of the adolescents ranged from 13–16 years. Convenience sampling was followed. The items were developed after an extensive literature review. Face and content validation was established. Item analysis, correlation and reliability tests were used. The reliability of the test-retest was 0.892 and the *Guttman Split Half Coefficient was 0.867, all indicating high reliability.*

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INTRODUCTION

For decades, many the riskv behaviour displayed by adolescents in modern society has been a major concern. Adolescence is a milestone in human growth and development as a turbulent period of transition from childhood to adulthood characterised by coexisting changes. It is a critical period of life in which a great deal of biological, psychological, and social changes occur and spans the ages of 10-19 years. Early identification and focused interventions are regarded as critical for assisting troublesome voung children and their families, as well as for communities and service providers who are responsible for the healthy development of children.

Adolescents and children have the potential to be valuable national assets. Prevention of adolescent-risky behaviour is crucial for a variety of reasons. One is that participating in risky behaviour may pave the way for further risky behaviour, increasing the possibility of self injury, victimisation by others, and other undesirable effects. (Ellickson, Tucker and Klein, 2003; Shader, 2003). Another reason is that engaging in even one type of risky behaviour consistently can jeopardise progress toward positive educational goals, such as graduating high school on time and can increase the likelihood of developing social, behavioural, physical, and mental health problems later in life. For practitioners, funders, policymakers interested and in achievable goals to avoid adolescent risky behaviour, excessive drinking in adolescence is connected with negative health effects in adulthood such as alcoholism (D'Amico, Ellickson, Collins, Martino, and Klein, 2005). Adolescent drug use has been associated with increased rates of cognitive impairments, isolation. theft, aggressive and behaviour. Illicit drug use, in general, has been demonstrated to increase the chance of hazardous sexual behaviour, delinquency, criminality, and drug dependence, as well as the risk of injury and death from motor vehicle accidents (National Institute on Drug Abuse, 2006). Aggression and delinquency have been linked poorer levels of educational to attainment as well as greater levels of mental health, substance abuse, and economic problems (Colman, Murray, Abbott, Maughan, Kuh, Croudace, et al., 2009). Youth who engage in risky sexual behaviour are at risk of contracting sexually transmitted diseases. having an unwanted pregnancy, and becoming a teen parent. Furthermore, participating in several risky behaviours increases the chance of negative effects.

Reliable assessment instruments are required to appropriately assess adolescents. Self report measures are one of the most appropriate assessment procedures for assessing risk behaviours in particular (Brener, Billy and Grady, 2003), allowing for the estimation of cognitive and emotional aspects which are difficult to access through external evaluation.

This will facilitate in obtaining a lot of information with a minimal investment of time, and expressing themselves through scores that facilitate the interpretation of the results without the need for inferences, and introducing appropriate psychometric properties (Fernández-Ballesteros, 2007).

OBJECTIVES OF THE **S**TUDY

The following are the objectives of the study.

- 1. To standardise At Risk Adolescent Screening Scale (ARSS)
 - a. Establishing the reliability
 - b. Establishing the validity
- 2. To develop a manual for the ARSS

SCALE DEVELOPMENT

The process of construction and standardisation of the instrument was performed on a three-phase cycle. In the first phase, an in-depth literature review and survey were conducted to generate relevant items on the challenges faced by parents of adolescents and what according to the parents are the challenges faced by the adolescents to gather the at risk behaviour of adolescents. In the second phase, the first pool of items was reviewed by test-making experts and administered to a pilot sample to assess the clarity, intelligibility, and appropriateness of each of the items. In the third phase, the items selected in the earlier phase were administered to a sample of adolescents, to assess their predictive validity and reliability, using item analysis. For the confirmation of the

samples for the phases, convenience sampling was carried out, given that the administration of the instruments was conducted only in those establishments where both the permission of the authorities and the consent of the parents were obtained.

For the administration of the instruments, authorisation to Ethic Committee Board was asked for. The Board assessed whether the study met the protection of the personal information of the participants, the privacy of the data collected, and its use only for academic and scientific purposes. Once the confirmation of compliance with the ethics committee board was granted, permission was asked from the school authorities where the study was carried out. To obtain consent for the participation of adolescents, their parents or guardians were contacted bv а notice setting out the reasons, importance, and consequences of their children's participation in the study, so that they could express their disagreement (or refuse permission) if they wanted (passive consent method). Thus, adolescents who did not have permission were excluded. The administration of the instruments was carried out via Google form where consent from parents and their adolescents were taken, briefing them about the study and informing them about the confidentiality that would be maintained. The responses were kept confidential by generating a unique code for each adolescent. For example, for our study, the unique identification code will be generated by combining class, division and roll no (7A1).

Phase 1: Item Pool Development Method

To obtain the first pool of items two qualitative procedures were carried out: (i) a review of recent literature on adolescents' risky behaviours and (ii) conducting a survey questionnaire with parents of adolescents to obtain the necessary material to construct the items and to later write them. Based on the data obtained in this phase, the first pool of items was made up, on which the questionnaire was built.

Sample

It consisted of 100 parents of adolescents of both sexes within the age range of 13 to 16 years, studying in Classes VII, VIII, IX and X standard from a school in Pune. The sample of the study was collected through the method of purposive and convenience.

Instrument

А survev questionnaire was conducted to investigate the risky behaviour of adolescents. This technique was thought to generate items relevant to the variables in the scale. The parents had to respond the following open questions: to (a) What can be the various challenges parents of adolescent children can experience? and (b) What can be the various challenges which an adolescent can face?

Procedure

Participants were the parents of adolescents between the age ranges of 13 to 16 years. To obtain permission from the school prior contact was made by taking an appointment with the Principal of the school. Permission was granted by the school after discussing the nature of the study, the time required and assurance of complete confidentiality. Before actually conducting this study a short prior contact was made with the respective participants and the objective was explained to the participants. Then instructions were given to the participants regarding filling up of questionnaires. After completion of the questionnaires, scoring and tabulation of the data, it was subject to statistical analysis.

Data Analysis

An analysis of the data gathered from the survey was carried out. A detailed analysis revealed that parents identified 8 distinct challenges which parents of adolescent children can experience (behavioural issues, lack of skill set, addiction-social media, phone, substance, emotional issues, academic issues. mental health concerns, parent-child relationship, peer pressure). Also for the various challenges which an adolescent can face, parents identified eleven distinct challenges (peer pressure, behavioural issues, lack of skill set, addiction-social media, phone, substance. emotional issues. academic issues. mental health concerns, puberty, hormonal and

physical changes, social pressure, parent-child communication or relationship, identity crisis).

Results

After reviewing relevant literature 18 areas-stress, anxiety, depression, body image issue, self concept, suicidal ideation. aggression. drugs, internet, gaming, truancy, delinquency, sex, bullying, parent-child relation, peer relation, withdrawal, social academic achievement) of adolescent risky behaviour was considered which was clubbed under four dimensions as suggested by the guide which helped form the question items for the scale. A hundred and one statements were prepared which were later reduced to 77 items after scrutiny by the experts. The scale was modified in the light of cultural context and reviews obtained from language experts, research experts, academicians and field experts in the field of adolescent development. Some conventional guidelines were considered when writing the items: (a) the items should be consistent with the purpose of the test, (b) excessively long items should be avoided, (c) complex and ambiguous sentences should be avoided, (d) statements with double negatives should be avoided. (e) extreme expressions (e.g., never, always, all) should be avoided, and (f) language should be used that is appropriate for the maturity and education level of the target population (Osterlind, 1990). The total item retained after this step is 62 items.

Phase 2: Content Validity

In this phase, the opinions of experts were to prove whether the items written were a representative sample of the construct of which some inference was made.

Experts Judgement

The goal of this study was to establish a consensus among the judges on the degree of congruence between the questionnaire items and the specific descriptions of each domain that the instrument purports to measure.

Method

The items written in the earlier stage were reviewed by expert judges to evaluate their semantic clarity grammatical and correctness, appropriateness to the comprehension level of the target population. and each item's congruence with the construct measured.

Participants

The panel of five experts with good experience in their relevant field were evaluated to determine the content validity of the scale. These experts were contacted individually. They evaluated the items for their cultural relevance, readability, suitability for 5 point rating scale, representation of positive or negative items and the domain to which they belong. The experts were requested to record their agreement or disagreement on any of the items of the scale. They were also requested to suggest the change in the items which they don't find feasible.

Instrument

To establish a consensus about the degree of congruence between items and specific descriptions of the content domain, the experts received form having scoring criteria а where, 1 = Not Acceptable (major modifications needed), 2 = Below Expectations (some modifications needed), 3 = Meets Expectations (no modifications needed but could be improved with minor changes), 4 Exceeds = Expectations (no modifications needed). Also the psychometric assessment of how well the items were written, by considering relevance, syntactic and semantic clarity, and how proper they were for the intended adolescent population (Osterlind, 1990). A space was also offered where the judges could give feedback that may be useful for the investigation.

Data Analysis

Agreement between examiners was estimated using the intraclass correlation coefficient (ICC). This ratio is considered more proper than the Pearson correlation coefficient because the latter shows the strength of the linear association between both assessments but not the agreement between judges.

Results

The choice for categorisation of each item was noted and the frequency of choice was calculated. Following the rule suggested by Polit and Beck (2006) that when there are five or less than five evaluators, the items agreed to by all the judges are to be considered, the items on which there was the consensus of five experts and above were retained as such and even if they suggested some change, it was inserted. Thus, the present form of scale has 0.5 as the content validity coefficient. A few other suggestions related to the wording of some items were also considered. Their opinions and suggestions were incorporated to make the content more relevant. It was at this stage that the negative items were included as per the expert's suggestion.

Phase 3: Reliability and Item Analysis (Internal Consistency) Method

To further refine the item pool and to offer a preliminary analysis of the potential structure of the questionnaire, item analysis was used to examine the items within each of the broad domains. Its internal consistency and predictive validity for at risk adolescents were analysed.

Sample

The scale was administered individually to 100 English speaking adolescents who belonged to Grades 7-10 and age range between 13-16 vears. Convenience sampling was used. The table below presents the socio-demographic details of the respondents. The female representation was slightly higher (6 per cent) than male representation. As students from Grade X were higher in participation, those from the mid-adolescence phase formed the majority. These adolescents were from different backgrounds.

Particulars	Category	Frequency	Percentage (%)
Gender	Male Female	Category Frequency Male 47 Female 53 Nuclear 86 Joint 14 13 15 14 16 15 47 16 22 7 12 8 14 9 13 10 61 0 27 1 69 2 4 Upper Middle 22 Middle 51 Lower Middle 27 Urban 82 Semi-urban 18 Rural 0	
Family	Nuclear	86	86
	Joint	14	14
Age	13	15	15
	14	16	16
	15	47	47
	16	22	22
Grade	7	12	12
	8	14	14
	9	13	13
	10	61	61
Sibling	0	27	27
	1	69	69
	2	4	4
Socio-economic Status	Upper Middle	22	22
	Middle	51	51
	Lower Middle	27	27
Location	Urban	82	82
	Semi-urban	18	18
	Rural	0	0

Table 1: Descriptive Demographic Details of the Sample

Instrument

The Adolescent at Risk Screening Scale (ARSS) has been developed to screen at-risk adolescents (between the approximate ages of 13-16). It has 63 items and screens out at-risk adolescents across four domains, i.e, academic, psychological, social, emotional and behavioural. The ARSS is a Likert five-point Summated Rating Scale. This scale can be kept confidential by generating a unique code for the children. For example, in our study, the unique identification code will be generated by combining class, division and roll no (7A1).

Procedure

The questionnaires were administered through Google Forms. Efforts were taken to seek the cooperation of students and the voluntary nature of their participation was emphasised. The researcher, who was one of the authors of this study, offered detailed instructions about how to complete the questionnaires and students had the opportunity to ask questions.

Data Analysis

SPSS was used.

RESULT

Item Analysis

After the pilot study the next step in the standardisation of a scale is to find out the value of each item, which forms the basis for item selection. The individual scores of all 100 respondents were arranged in descending order from the highest to the lowest score. The top 25 per cent of the subjects with the highest scores and the bottom 25 per cent of the subjects with the lowest scores, served as criterion groups, and were sorted out for item selection. The 't' value for all 63 items has been calculated with the help of formula suggested by Allen Edwards (1957). Items with a 't' value equal to or greater than 1.75 (Edward. L. Allen, 1957) were accepted and those with a 't' value below 1.75 were rejected. For 63 items out of 74, the value was

found equal to or greater than 1.75. Altogether 11 items were dropped. Some items with a correlation of less than 0.2 were retained due to the content covered by the items. Even though these items correlated with the total scores at a less-thanoptimal level, these items correlated moderately with at risk subscale scores. Therefore, 63 items were retained in the standardisation of Adolescent at Risk Screening Scale (ARSS). Questionnaire items were deleted or revised if they were: identified by respondents as difficult to understand; or considered by the researcher to have poor face validity. New items were added accordingly and some items were rewritten in the remaining scales so that items reflected the underlying construct more closely or to simplify the language.

Table 2: Item Reduction and Wordings Changed in Adolescent atRisk Screening Scale

S. No.	Description of item	't' Value				
Acade	nics					
1	I make good use of time when it comes to studies.					
2.	I don't like going to school.	0.292				
3.	Doing well in school is important to me.	0.581				
4.	I enjoy studying.	0.398				
5.	I only study before the exams.	0.427				
6.	It is important to me to do well in school.	0.084				
7.	I need other people to tell me to study- my parents, friends, teacher, etc.	0.196				
8	I memorise things, even though I don't understand them.	0.411				
9.	Doing well in school is important to my family.	0.377				
10.	This year my grades have worsen than last year.	0.408				

- School is a waste of time. (changed)
- I study because I'm interested in learning. (changed)
- I need other people to encourage me to study—my parents, friends, teacher, etc. (changed)
- My academic performance depends on the efforts I make. (changed)
- I make good use of the time I invest in studying. (changed)
- Doing well in school is important to me. (changed)
- Doing well in school is important to my friends and family. (changed)

Psycho	ological						
1.	I worry about things.						
2.	I feel nervous.						
3.	I have thoughts of bad things happening in my life.						
4.	I believe bad things happen to people like me.						
5.	I find difficult to concentrate or relax.	0.626					
6.	I have purposely hurt myself without wanting to die, such as cutting, scraping, or burning.						
7.	I lose my temper.						
8.	I feel tired/fatigued or low in energy.						
9.	I feel worthless.						
10.	10. I have concerns or questions about the size or shape of my body, or my physical appearance.						
• I fee	l irritable, lose my temper, feel pissed off easily. (modified)						
• Feel to ge	ing tired, feeling fatigued, low in energy, hard to get motivated, hav et things done, want to rest or lie down a lot. (modified)	ve to push					
Feel pers	ing of worthlessness, hopelessness, letting people down, not bein son. (modified)	ng a good					
• I oft	en worry about or fear about something. (deleted)						
• I wo	uld like to get counselling about something that is bothering me. (deleted)					
Social							
1.	It is difficult for me to make friends. 0.597						
2.	It is difficult for me to disagree with another person's point of view. 0.247						

4.	I find it difficult to initiate conversation with strangers.							
5.	I have a difficulty talking to new people.	0.645						
6.	I am good at entering new situations and meeting people for the first time.	0.517						
7.	I feel comfortable while performing in front of an audience.							
8.	When mixing in a group, I find myself worrying I will be ignored.	0.503						
9.	I worry about expressing myself in case I appear awkward.	0.413						
10	I know at least one person with whom I can talk to about problems.							
• I fin	d it difficult to disagree with another's point of view. (changed)							
• I am	unsure whether to greet someone I know only slightly. (changed)							
• I fee (cha	l comfortable while acting, performance or speaking in front of an nged)	audience.						
• Initi	ating conversation with strangers. (changed)							
Interne	et and Gaming							
1.	I would rather spend time online than do things around the house.	0.450						
2.	My performance in school suffers because of the amount of time I spend online.							
3.	People close to me are concerned about the amount of time I spend on my smartphone or computer.	0.485						
4.	I am concerned about missing out on things online when not checking my smartphone.	0.308						
5.	I get irritated when people interrupt me while I am using my computer or smartphone.	0.505						
6.	I feel anxious when I do not have my smartphone with me.	0.542						
7.	I prefer staying home and using the internet than going out with friends.	0.249						
8.	I neglect other important activities (e.g., school, work, sports) to play online games.	0.557						
9.	Has online gaming taken the place of any hobbies or sports you 0.4 used to enjoy?							
10.	I get very angry when someone or something interrupts a game.	0.547						
• I an	n bothered when people interrupt me while I am using my cor	nputer or						

smartphone. (changed)I would rather stay home and use the internet than go out with friends. (changed)

- Have you neglected other important activities (e.g., school, work, sports) to play games? (changed)
- Has gaming taken the place of any hobbies or sports you used to enjoy? (changed)

Deling	uency					
1	Argue or fight with either of your parents.	0.437				
2.	Hit someone with the intention of hurting them.	0.322				
3.	Steal something from a store without paying for it.					
4.	Bullied people on social media platform? (Count instagram, facebook, chat rooms texting, etc.)	0.511				
5.	Sneak money from an adult's wallet, purse, or other place.	0.357				
6.	Cheated in the examination.	0.587				
7.	7. Forged signature on school forms, marksheets, etc.					
8.	Used abusive language with others.	0.709				
9.	Involved in physical fight where I or someone else has got hurt.	0.497				
10.	When I get angry I do violent things.	0.511				
• Dur	ing the past 30 days, how many times were you in a physical fight?	o (deleted)				

During the past 30 days, did you bully anyone in person or electronically? (Count instagram, facebook, chat rooms texting, etc.) (deleted)

Subst	ance Use						
1.	I don't think it will be difficult for me to get cigarettes if I want.	0.355					
2.	If given a chance I can try smoking.	0.388					
3.	3. My close friends have tried cigarettes.						
4.	My close friends have tried drugs.						
5.	I think use of cigarette/alcohol makes young people look cool.	0.284					
6.	6. I have tried alcoholic drinks or cigarettes.						
7.	7. None of my friends have tried drugs.						
• I thi	• I think smoking cigarette makes young people look cool or fit in. (changed)						
• Hav	e you ever tried cigarette smoking, even one or two puffs? (deleted)						
• Hav	e you ever tried to use chewing tobacco, snuff or dip, etc? (deleted)						
• Any	substance or drug addiction. (deleted)						
Sex							
1.	I would like to have sex to see what it is like. 0.5						
2.	 I believe youths who have never been involved in sexual intercourse before marriage are old-fashioned. 						

3.	My friends have had sex.	0.486
4.	I have read erotic books or watched pornography.	0.546
5.	I believe a sexual encounter that lasts only once is all right.	0.631
6.	It is good to have sex before marriage to see whether one is physically compatible or not.	0.509
7.	One can have sex before marriage if they are in love.	0.475
8.	I have received information about how to avoid getting sexually transmitted diseases.	0.581
Mos	t of my friends think that you can have sex before marriage if you a	re in love

- Most of my friends think that you can have sex before marriage if you are in love. (changed)
- I have received information on abstinence ('how to say no to sex'). (deleted)
- I have received information about how to avoid getting pregnant/getting HIV/ AIDS, or getting sexually transmitted diseases. (changed)

Internal Consistency

For this purpose reliability was estimated by administering it to 100 adolescents on one occasion. It was estimated to determine how well the items will yield the same results. We computed the correlation between each item. One item was indicated as not applicable by the majority of adolescents. Hence this item was deleted.

Reliability

The reliability of the At-Risk Scale was estimated through the split-half

method of reliability and the testretest method.

a) Split-half reliability: The scale was administered to 100 adolescents selected randomly. The collected data was divided into two halves (on an odd-even basis). The correlation coefficient (for full scale) between two halves of the test was found as 0.867 which is significant at 0.01 level. The area-wise reliability coefficient of the scale was also worked out which is given in Table 3 below—

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Table 3:	Area	wise	reliability	of scale	(snlit-half	'reliahility)
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Reliability	Psycho-				Emotion an	d Behaviou	ral
Coefficient	logical	Social	Academic	Sex	Delinquency	Substance Addiction	Online Addiction
r	0.867	0.704	0.770	0.532	0.822	0.539	0.838

*significant at 0.01 level

b) Test-retest reliability: The scale was administered to 100 adolescents selected randomly. After two weeks the scale was again administered to the same subjects. Then coefficient of correlation computed between the first and second tests was found to be 0.892 (for full scale) which is significant at 0.01 level. The area-wise reliability coefficient was also computed through this method of scale which is given in Table 4 belowscale is suitable for both individual and group administration. Today, adolescents are at risk for various reasons which are a major concern. It needs immediate attention from the family. community, school administration, managing committee and the system as a whole. This tool can be an important instrument in screening at risk adolescents. The scale is a resource to study, research or survey the adolescents who are at risk and to prepare and plan for

Table 4: Area wise reliability of scale (test-retest reliability)

Reliability Coefficient	Psycho- logical	Social	Academic	Emotion and Behavioural			
	0			Sex	Delinquency	Substance Addiction	Online Addiction
r	0.892	0.956	0.977	0.956	0.976	0.806	0.923

*significant at 0.01 level

Thus, the final form of the scale was found to be reliable.

DISCUSSION

The purpose of the present study was to develop and validate test items to assess At Risk Adolescent Screening Scale (ARSS). The 63 final items screen the levels of risk and present acceptable psychometric properties. Every item analysis showed evidence of content validity and internal consistency. The questionnaire has discrimination allowed between adolescents with high and low levels of risk. Likewise, adolescents with perceived higher scores greater risk, while adolescents with lower scores perceived not at risk. The the interventions. It can be useful for teachers, parents, psychologists, counselors, and educationists in their specific area of work, to understand adolescent risky behaviour and plan at various levels namely at social, family, school administration, etc. This scale can be used to facilitate referral and screening procedures for adolescents at risk to refer them to the appropriate resources, programmes and services. By making it possible to identify at risk adolescents, this scale can help strengthen the foundations of targeted prevention approaches by focusing resources on a specific clientele and by recommending appropriate interventions by assessing the level of risk (low/moderate/

and developing tailored high) intervention plans. It is increasingly accepted that the identification of adolescents presenting risk factors and the assessment of their risk levels are key aspects of an effective prevention initiative. However, there are challenges associated with the use of this scale, including the risk of stigmatisation of an already vulnerable clientele and errors in interpreting results. For practitioners using this scale, it is important to ensure that the programme's objectives and implementation criteria are compatible with those of the tool selected.

However. caution should be exercised in generalising the present findings because of the nonrepresentativeness of the sample. Although adolescent students from both public and private schools were included, explicit consideration was not given to the student's socio-economic status, a variable that should be considered in future studies. Furthermore, the evaluation of the usefulness and scope of the scale developed is proposed for future experimental studies. particularly pre-post studies assess to the efficacy of the interventions. This questionnaire could be used to evaluate the effectiveness of educational programmes to promote well-being in adolescents. Achieving voluntary change in adolescents may be difficult when considering thus parents and caretakers can be psycho-education and their involvement can be benefitting the intervention.

CONCLUSION

At Risk Adolescent Screening Scale (ARSS) is easy to use in educational settings to accurately identify students with academic, psychological, social, emotional and behavioural risks. The degree of risk continuum developed by this tool helps distinguish between children based on their degree of risk; the greater the overall risk score, the greater the likelihood of future problems. This continuum helps define three major sub-groups based on the degree of risk (low, moderate and high) for determining intervention duration and intensity. When used in schools, this tool promotes the success of adolescents at risk and addresses them by identifying them early and allowing for quick corrective action.

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