Research Article

Prediction of Kindergarten Readiness Using a Questionnaire Based Screening Tool

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ABSTRACT

Background and objective: Kindergarten is a critical period in a child's life. Most schools use a "maturationist frame" in declaring school readiness by assuming that children of a certain chronological age are ready to join school. So far as there are no studies from India which have looked into the factors affecting the level of school readiness, a questionnaire based developmental screening tool was used to predict the same. *Methodology:* After obtaining permission from school authorities, the teachers of the junior kindergarten class and the parents were briefed in detail about the cross sectional study and informed consent was obtained. The pilot tested questionnaire was given to the parents to assess, which covered various aspects like reading, writing, communication, health, motor skills etc. After a period of three months, the class teachers who were blinded from the information obtained through the questionnaire was asked to grade the readiness of children on a likert scale of 1-10. The data was analysed using Chi square test and Pearson correlation coefficient. *Results:* On correlating the score given by the teachers and the parents, it was found to have a highly significant positive correlation. A score equal to or greater than 55 is 80% sensitive and 60% specific in predicting school readiness whereas a score of equal to or greater than 51 is 93% sensitive and 50% specific. Hence school readiness can be predicted using the questionnaire filled by the parents themselves. *Conclusions:* A questionnaire based screening tool filled helps the parents themselves to predict school readiness in children seeking admission to the kindergarten school. Moreover, the scores obtained from the questionnaire can help the teachers give better aid to those children who are not yet ready for school.

Keywords: School Readiness, Development

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Kindergarten is a critical period in a child's life which sets them on a path that influences their subsequent learning and school success. Early experiences influence brain development, establishing the neural connections that provide foundation for language, reasoning, problem solving, social skills, behaviour and emotional health. Most schools use a "maturationist frame" for school readiness by assuming that children of a certain chronological age are ready to succeed in school. Blair takes a neurobiological approach instead, emphasizing the importance of emotion and self regulation for children's school readiness and for the importance of low stress environments in early childhood for fostering such readiness (1). The approach by Murphy and Burns stresses the bi-directionality between the child and her or his environment (2). Graue and Meisels suggested "goodness-of-fit" between the child and the environment that supports and promotes optimal development (3).

The three dimensions of school readiness are children's readiness for school, schools' readiness for children and families' and communities' readiness for school.

The children's readiness for school can be studied under five domains which are interdependent.

These are physical well-being and motor development, social and emotional development, approaches to learning, language development, cognition and general knowledge (4).

School readiness is gaining importance all over the world and there remain issues that need better understanding especially with regards to the readiness of the child.

Objectives:
- This study was done to develop a questionnaire which can be used by the schools as a screening tool for school readiness

MATERIALS AND METHODS

This study was done as an ICMR STS (expand) project. The study protocol was presented to the institutional ethics committee and permission was obtained. One of the English medium schools ("The Study School") from Pondicherry (representing both the urban and rural children of Pondicherry) was chosen for the study. Permission was obtained from the school authorities prior to the start of the study. On the first day of admission of the kindergarten children to the school, the teachers and parents of the children were briefed by the principle investigator in detail about the study and consent obtained. Of a total of 80 students in the school, 75 consented to participate in the study.

The questionnaire (pilot tested and validated prior to the study) was given to the parents. The questions covered various aspects like reading, writing, communication, health, motor skills etc. There were a total of 40 questions, each with three options (cannot do with a score of 0, can do sometimes with a score of 1, can do consistently with a score of 2). The maximum

score that could be obtained was 80 and the minimum was 0. Parents were given a time of 5 days to finish the questionnaire and return it.

After a period of three months from admission, the class teachers who were blinded from the responses obtained from the parents questionnaire, was asked to grade the readiness of children on a Likert scale of 1-4 (not ready for school), somewhat ready for school (5-7)and ready for school   (8-10). The score given by the teachers was correlated with the score obtained from parents. Statistical analysis was done using Chi square test and Pearson correlation coefficient.

QUESTIONNAIRE:

FORM NO:

Instructions: Please tick ( ) whichever is applicable.

PART A:

1. Name of the child:

2. Date of Birth:

3. Sex of the child: 1. Boy   2. Girl

4. Form filled by: 1. Mother   2. Father 3. Both by the mother & father   4. Any other

5. **Educational status of the father:** 1. Postgraduate   2. Graduate 3. High school
                                       4. Primary school   5. Illiterate

6. Educational status of the mother: 1. Postgraduate   2. Graduate   3. High school
                                       4. Primary school   5. Illiterate

7. Occupation of the father:

8. Occupation of the mother:

9. **Contact mobile number:**

10. How many brothers/ sisters your child has? _____

PART B:

I.   Letters, words, numbers: Graded as cannot do(0), can do sometimes(1), does consistently(2)

1. Can your child match a letter with the beginning sound of a word: e.g, "A" with picture of apple?

2. Can your child recognize rhyming words such as cat and hat

3. Can your child recognize his or her own first name in print either in english or mother tongue.

4. Can your child understand words such as "top" and "bottom" and "big" and "little?"

5. Does your child draw pictures to express ideas and tell stories?

6. Is your child able to recognize and name at least 5 letters of the alphabet?

7. Is your child able to recognise and name at least five colours?

8. Can your child draw a line, circle?

9. Can your child recognize and name 4 shapes: circle, square, rectangle and triangle

10. Can your child count at least 5 objects such as 5 bananas and 5 cookies?

II. Communication: Graded as cannot do(0), can do sometimes(1), does consistently(2)

1. Does your child share and talk about his/her own experiences in a way that can be understood by most listeners?
2. Can your child follow directions with at least two steps, e.g.: "Pick up the blocks and put them on the shelf, please."
3. Does your child initiate and join in conversations with adults and children
4. Does your child ask questions about how things work in the world around him, for example: "Why do babies cry?"
5. Does your child say and/or sing familiar nursery rhymes
6. Can your child answer simple questions: who, what, when, where?

III. Books: Graded as cannot do(0), can do sometimes(1), does consistently(2)

1. Can your child hold and look at books correctly: for example, holds the book right side up
2. Can your child tell a story from the picture on the cover or in the book?
3. Can your child retell a simple story such as the "Monkey and the hat merchant "after listening to it.
4. Can your child make simple predictions and comments about a story being read?
5. Does your child show growing interest in reading and being read to?

IV. Matching patterns: Graded as cannot do(0), can do sometimes(1), does consistently(2)

1. Can your child match two pictures that are alike?
2. Can your child look at groups of objects and say which is the same shape, colour or size
3. Can your child tell things that go together, for example: a spoon for eating and cup for drinking?
4. Can your child repeat a pattern you start, for example: step, step, jump - step, step, jump?

V. Growing up: Graded as cannot do(0), can do sometimes(1), does consistently(2)

1. Can your child tell full name?
2. Can your child tell if he or she is a boy or a girl?
3. Can your child tell how old he or she is?
4. Can your child take care of own needs such as washing hands, dressing and is toilet trained?
5. Can your child adjust to new situations without parents being there?
6. Can your child run, jump, hop, throw, catch and bounce a ball?
7. Can your child ride a tricycle?
8. Can your child use pencils, crayons for drawing and writing?
9. Does your child resolve conflicts with playmates and others appropriately?
10. Does your child takes turns, shares and plays with other children?
11. Can your child put 4 piece puzzles together?

VI. Health:

1. Does your child follow a set routine and schedule for preparing for bed, personal hygiene and eating?
2. Does your child wash hands after using the toilet and before eating?
3. Is your child aware of and follows simple safety rules?
4. Does your child recognize potentially dangerous or harmful, substances, situations and activities?

OBSERVATIONS AND RESULTS:

Of a total of 75 children who consented to be part of the study, 19 were excluded due to inadequate data and 56 were included in the final analysis. . The mean age of the study patients was 4years 6 months [with maximum age: 5years 8months and the minimum age: 3years 1month]. The frequency of males was 27/56 (48.2%) and females were 29/56 (51.7%). Majority of the Questionnaire forms were filled by both the parents together (44.6%). Majority of the mothers were homemakers (67.9%) and fathers were graduates and above (85.7%) The maximum score obtained in the questionnaire filled by the parents was 78 and the minimum score was 31. The mean score was 55.8 (SD=11.7)

As per the teacher's assessment of the 56 children 46 (82.2%) were at least somewhat school ready. There was positive correlation (r= 0 .77) with a significance of 0.001 between the parents and teachers scores Educational status of mother (i.e. whether educational status is high school and less/ graduates and above) showed no significant statistical difference with respect to the score obtained in the questionnaire (p=0.430)

With respect to the working status of the mothers, there was no statistical difference in the mean score obtained in the questionnaire (p= 0.817). Similarly, with respect to the teacher's assessment of the same students, there was no significant statistical difference obtained (p=0.68)

Out of the total possible score of 80 a score equal or greater than 55 is 80% sensitive and 60% specific in predicting school readiness whereas a score of equal to or greater than 51 is 93% sensitive and 50% specific.

Table no.1- Domains used in questionnaire

Domains	Maximum Score Attainable	Mean	Standard Deviation (S.D.)
Fine motor	20	12.93	4.129
Language/communication	10	8.3	1.848
General knowledge	10	6.43	2.365
Cognition	10	6.16	1.807
Social development	22	16.43	3.474
Health	8	5.55	1.778
OVERALL	80	55.8	11.76

Table no.2- Ratio analysed as per as demographic profile

| Demographic Profile	N (%)		
Gender of the child	Male	Female	
	27 (48.2%)	29 (51.7%)	
Questionnaire filled by father / Mother/ Both	Father	Mother	Both
	11(19.6%)	19 (33.9%)	25 (44.6%)
Educational status of the father	Graduate &above	Below graduate	
	48 (85.8%)	8 (14.2%)	
Educational status of the mother	Graduate &above	Below graduate	
	44 (78.6%)	12 (21.4%)	

Table no.3- Score obtained by the mother with relation to the working status of the mother

Mean Score	Children with working mothers (18)	Children with non-working mothers (38)	P value
Questionnaire Score	57.5 (SD= 12.1)	55 (SD= 11.6)	p= 0.817
Teachers' Assessment Score	6.39 (SD= 1.7)	6.3 (SD= 2.9)	p= 0.68

Table no.4- Teacher's assessment of the same students under study

Teacher's Assessment	Not ready (1-4)	Somewhat ready (5-7)	Ready (8-10)
n	10	31	15
%	17.9	55.4	26.8

Figure1:
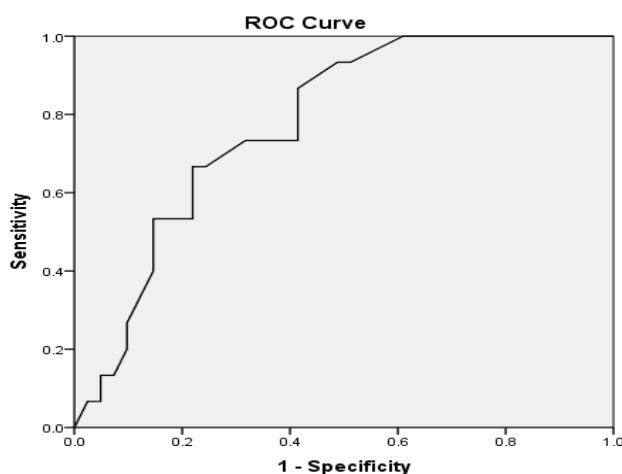
DISCUSSION

School readiness is a powerful framework for improving equity in access to education and in learning outcomes. 'School readiness' has always been at the level of the child and the family

concerned. The question has mainly focussed on whether a particular child is ready for school. Keeping this in mind the present study was designed.

An overall comparative analysis was done on various sectors based on those data filled in by the parents and teachers in response to the questionnaire handed over to them respectively. The different sections of emphasis included: Learning and reading ability, Motor skills, Communication skills and other growing patterns.

Children belonging to the age group of 3-5years who joined school for the first time (kindergarten) were the main focus of the study. Both, the parents as well as the teachers scored their wards based on the questionnaire given and a correlative study was then later done on the obtained data.

Out of 56, a total of 45 kids were at least somewhat ready for school according to the teachers assessment scale. On correlating the score given by the teachers and the parents, it was found to have a highly significant positive correlation. A score equal to or greater than 55 is 80% sensitive and 60% specific in predicting school readiness whereas a score of equal to or greater than 51 is 93% sensitive and 50% specific.

Hence school readiness can be predicted using the questionnaire filled by the parents themselves.

To our knowledge this study is first of it's kind. We recommend that schools use this questionnaire which is easy to administer and can be filled by the parents themselves at the time of school entry to see whether their child is school ready. Even if the schools admit children who according to the questionnaire are not school ready, these scores obtained from the questionnaire can assist the teachers give more help to those children who are not yet school ready. The teachers can provide extra care and attention towards these children so that they become better learners.

This study also showed that the working status of the mother did not make a statistically significant difference with respect to the scores obtained by the children as well as the assessment of the teacher.

CONCLUSIONS:

1. A questionnaire based developmental screening tool filled by the parents themselves can be used to predict school readiness in children seeking admission to the kindergarten school.
2. Mothers should be discouraged from discontinuing work solely to prepare children for school as homemakers did not fare better compared to the children whose mothers were working.
3. The scores obtained from the questionnaire will form the basis on which the teachers can plan to help children who are not yet school ready.

Conflict Of Interest None

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