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Regular Article

Is parental awareness of children's academic potential a good predictor of children's learning outcomes in Early Year's settings? Findings from two provinces in Pakistan and India☆

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ABSTRACT

Awareness and knowledge form the basis of parental involvement in children's education. There is very little known about parental awareness of children's learning in the Early Years setting, especially in global south countries. This study presents findings of a large-scale parental survey which focuses on awareness as a predictor of children's learning. The study carried out learning assessments of 1023 children aged 4–8 years and surveyed 873 parents in two provinces in India and Pakistan. To determine the association patterns, the children's learning assessments were linked with parental education, parental awareness of children's learning, school attendance status, and household socioeconomic indicators. The descriptive analysis shows moderate to low positive associations between parental awareness of children's learning and children's actual outcomes in literacy, numeracy, and social emotional learning. Parental awareness is more positively associated with literacy than numeracy and it is slightly negative for non-cognitive outcomes. In the linear regression model children's age, urban-rural differences and parental awareness remain important predictors of children's learning outcomes. However, parents attending school (or not) does not explain variation in children's learning outcomes. Parental awareness is a better predictor of children's learning outcomes than parental school education. This means children's learning can be supported by parents regardless of their own education. The implications call for a development and evaluation of interventions for the improvement of parental awareness. This could lead to changes in parental involvement in education and subsequently impact on learning outcomes.

1. Introduction

Education systems cannot achieve targets unless parents participate and make long-term commitments to their children's education process (Siddiqui et al., 2022; Wei & Ni, 2023). State level policies and financial investments can facilitate a child's chance of gaining an education and participating in the learning experience. However, the primary factor is parental commitment and cooperation with regards to their child's enrolment and regular attendance in school (Campbell, 2011; Jabar, 2021). Children that face socioeconomic disadvantage are most vulnerable to the risk of parents' lack of resources and commitment towards children's education (Siddiqui et al., 2022). Therefore, the parent's role is an important conduit between school and a child's right to education.

Parental educational background supports their awareness and participation in children's education (Paul et al., 2021). Any gap in the knowledge of parents with low education levels and subsequently low income can be addressed through supporting disadvantaged parents by giving them information resources and knowledge of children's learning levels (Dinkelman & Martínez A, 2014).

Existing literature states that parents can be provided skills to support or reinforce their child's learning processes (Bunting, 2004). The skills taught could be wide ranging, targeting parental literacy, school systems knowledge, parenting skills, and skills to encourage a child's interest in learning (Wasserman, 2016). In this paper we conceptualise parental awareness as direct knowledge of their children's learning outcomes in literacy, numeracy and social emotional skills.

Parents' awareness of children's learning is a sub-component of

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parent's understanding of children's development processes. Relative to other aspects of a parent's role in their child's academic achievement there has been very little evidence available on parent awareness around academic competencies (Sonnenschein et al., 2014). Understanding the links and gaps in knowledge of academic capacity and tasks can inform parental involvement. This paper sets out to answers the research question:

"To what extent does parental awareness accurately predict their child's learning outcomes controlling for socioeconomic factors?"

This study is based on cross-sectional data from two provinces in Pakistan and India. The data includes learning assessment of 1123 children aged 3–8 years and a survey of 873 parents. The children's assessments and parental survey were conducted by trained enumerators.

Parents rated their children's learning in literacy, numeracy and social emotional learning as they perceived to be the best knowledge of their children's learning. Children were assessed on a standardised assessment administered by the trained enumerators.

Children's learning assessments were linked with a parental awareness survey and household socioeconomic indicators. The analysis compared correlation patterns and effect size between children's learning outcomes, parents' characteristics and parents' knowledge of children's learning. In the regression model child related factors, family socioeconomic indicators, parental knowledge of children's activities, and children' s school attendance status added further explanation on learning outcomes.

2. Existing evidence on parents' awareness

The existing evidence draws attention to associations between parental education and socioeconomic status as the key factors in children' academic success. A parent's qualification and educational experience are likely to drive their engagement in their child's learning process while their socioeconomic status dictates their ability to provide the home environment that can boost academic learning (Desimone, 1999; Feinstein & Sabates, 2006; Huntsinger & Jose, 2009).

Parental educational levels relate to their awareness concerning the importance of education for their children. According to Chevalier (2004) more educated parents invest knowledge, resources, and experience of education for their children's academic success. Parents' cognition of children's developmental processes and needs is deemed important because it can influence parents' behaviours and actions such as their involvement and decision making for their children (Karaagac et al., 2022; Simpkins et al., 2012). Parents with no education realise the importance of children's education but their involvement can be restricted by their lack of awareness about their child's academic potential (Dizon-Ross, 2019), school regulations (Mbhiza & Nkambule, 2023), and incentives or welfare benefits for disadvantaged children.

Parents' age and mental health, especially those of mothers, are factors that have shown association with children's development and attainment outcomes (Moffitt, 2002; Thiveos, 2014). In comparison to young and teenage mothers, older mothers are more aware of their children's health and developmental needs and have more agency to make decision such as a child's enrolment in school (Contreras & Thiveos, 2014). Mothers' mental health and postpartum depression show variation in children's cognitive outcomes after controlling socioeconomic status (Abufhele et al., 2022).

Some studies have used parents' ethnicity, alcohol and cigarette consumptions as indicators of children's development and later educational outcomes. However, these indicators are mainly controlled by parental qualification, employment status, occupation category, and income (Glewwe et al., 2011; Narea, 2015; Narea et al., 2020). In most studies where parental socioeconomic status is available ethnicity and substance abuse do not explain sufficient variation in children's development and educational attainment (Daniel et al., 2009).

The evidence on parental knowledge and involvement is mainly informed by studies where children's samples are at a pre-school age. The majority of studies focused on explanatory power of parental characteristics in predicting children's development in health, access to education and educational outcomes (Bornstein, Cote, Haynes, Hahn, & Park, 2010). Home environment is a widely used predictor of children' educational outcomes and is considered the closest to parental knowledge and awareness of children's needs for development and academic attainment (Davis-Kean, 2005; Hannan & Luster, 1991; Harris & Goodall, 2008).

Very few studies have directly assessed the role of parental awareness of children's academic attainment (Sonnenschein 2012). The assumption, corroborated by some evidence, suggests parents show positive bias towards their children's academic potential (Pezdek et al., 2002). Parental bias might be the reason that studies have given lesser attention to parents' direct awareness of children's academic attainment.

Schools and teachers invest high expectations from parental involvement in children's education but the impact evidence of parental involvement on children's attainment is weak and studies do not meet high standards of research quality (Gorard & See, 2013). The evidence toolkit in England suggests that parental involvement is low-cost and most impactful on children's attainment (EEF Teaching and Learning Toolkit Parental engagement | EEF (educationendowmentfoundation.org.uk)). However, only one of the five large-scale trials conducted in England showed small positive results and the quality of the study is very weak due to high level of attrition and missing data on children's attainment (Miller et al., 2017). Of relevance to this paper, the low-quality study with a tiny positive impact, is a programme of school sharing information with parents using mobile texts. It might be that most parental involvement programmes and interventions are not appropriately targeting the gaps in parents' awareness of children's academic attainment.

3. Parental awareness in context of developing countries

State funded schools provide free education but the associated expenses of attending school can be a burden on family income resources. In the absence of state laws enforcing compulsory school attendance, which is free of cost and accessible, household income remains a determinant of children's access to school education. Families facing credit constraints distribute resources on children's education considering the opportunity cost it can have on the family (Jenkner & Hillman, 2004). Parental perception of returns on children's education can be culturally influenced such as prioritising education for boys instead of girls (Ahmed et al., 2022).

Parental literacy rates are very low in poor countries and the information they have regarding availability, benefits, provisions, and long-term impact of education can be limited. Parental awareness supplemented with monetary support has been found impactful on children's attendance to school (Baird, McIntosh, & Özler, 2011; Gorard, See, & Siddiqui, 2022). The evidence is very clear on the malleability of parental awareness and its outcomes on children's education.

A large-scale experimental study in Malawi assessed the role of parental awareness of children's academic achievement and its association with their decision on investment on children's school education (Dizon-Ross, 2019). The study found that parents with low education levels have mistaken perceptions of children's academic potential. This may lead to misinformed decisions for their children's chances of education. The study also found that accurate information about children's academic achievement and worth of school attendance can change parents' perceptions, leading to positive changes in financial investment for education.

Another large-scale randomised controlled trial in Madagascar investigated three treatment effects on parental awareness regarding the returns on children's education and subsequent changes in children's school attendance and academic attainment (Nguyen, 2008). The most

positive and impactful treatment on the two outcomes was sharing information with parents as to the potential average earnings of their child at each level of education completion and the overall income gains on successful completion of school education. The evidence showed that on average parents can adjust their perceptions and subsequent response to children education according to the level and accuracy of information.

A traditional method of parental involvement still prevalent in many school systems across the world is sending children's report card to parents including information on children's attainment. A study conducted in Pakistan assessed the impact of report cards sent to parents on children's assessments (Andrabi et al., 2017). The study randomised villages in which the treatment group received children's academic performance report cards for parents' intervention and the controlled villages remained business as usual. The study findings showed changes in patterns such as private school reduced fee, low performing private and public schools improved average attainment and parents changed children's schools from private to public after receiving information about children's academic performance in the form of report card. School level impact was more obvious than individual performance of children's attainment. The findings indicated that parental awareness is malleable and promising for school level outcomes. However, other studies have shown that academic performance report cards can lead to negative impact on children's social emotional wellbeing leading to increased dropout from school (Chen & Kaplan, 2003), and adverse impact on performance of children struggling to achieve (Craig, 2011).

Parental awareness matters in the context of disadvantaged communities where children's chances of education are dependent on parental choice. Low parental literacy combined with income constraints can adversely impact on children's education. However, parental awareness of children's academic potential and long-term returns of education seems a reasonable and low-cost intervention. It is evident from the existing literature that the approaches to boost parental awareness vary and the evidence is unclear as what form of parental awareness can yield best educational outcomes for children, what factors need supplementary support and to what extent the impact of parental awareness last on its own or supplemented with other interventions.

4. The present study

This study is a cross-sectional comparison based on data collected from two provinces in Pakistan and India. The study sample included urban and rural parts of the two countries where formal school attendance has not achieved school attendance targets as in Punjab, Pakistan (Shuja et al., 2022) and where there is full enrolment but high dropout rate as in State of Gujarat, India (First India Bureau, 2021).

We targeted children 4–8 years old because this age group is considered early years in India and Pakistan. In both countries early primary and early childhood education provisions enrol children in this age group. Children 4 to 8 are expected to attend some early education settings. However, it is not compulsory for parents to enrol children and ensure attendance in a formal education setting.

We recruited households where we had access to children who were either attending schools, where children had never attended school and there were children who had dropped out from school. We collected data on household characteristics, children's learning performance and a parents' survey of children's activities and learning outcomes. The three datasets were linked to answer the following research questions.

1) To what extent are parental awareness of their children's learning outcomes matter?
2) Does parental awareness advantage children in terms of their school attendance and learning outcomes?

The sampling took place in 12 districts of the Punjab province in Pakistan, and 6 from the state of Gujarat in India (Table 1). Ten volunteer households participated in two villages, in each district. This study involved 90 highly experienced enumerators recruited from the local communities, who had access to households. The enumerators recruited households where all had some children aged 4 to 8, according to parental reports. The enumerators were local community members and therefore they had an established rapport with household members that supported the process of data collection.

Table 1
Participant characteristics.

Characteristics	*No. Participants*
Households	
Urban	395
Rural	388
Total No.	783
Children	
Boys	501
Girls	522
School Never Attended	98
School Dropout	53
School Always attended	872
Children India (State of Gujarat)	480
Children Pakistan (Province Punjab)	543
Total No.	1023
Parents	
Mothers	643
Fathers	252
Other family member	29
Total No.	873

The sample is reasonably balanced with a large number of cases for the analysis. Girls and rural households are disadvantaged and usually underrepresented in general in studies from developing countries. We were cautious therefore to maintain efforts to prevent bias due to underrepresentation of disadvantaged groups.

Missingness due to non-response is very low. There were very small number of cases where information was not provided, could not be recorded, or lost in linking three separate datafiles on household characteristics, children's assessment, and parent survey. In the analysis we maintained a full sample of 1023 children and 873 parents. Where information is missing, we recorded it as missing instead of excluding the cases from analysis or using any statistical imputation method. Missing cases due to non-response were not excluded from the analysis because this could lead to biased findings. A large body of robust evidence that has shown missingness is not random and largely disadvantaged and underrepresented cases fall in the category of missing cases or non-response (Gorard, 2020; Siddiqui & Gorard, 2023). Therefore, we retained cases by recoding the information as missing. Table 2 presents the percentage of missingness in the variables used in analysis.

4.1. Instruments

The children were assessed for literacy, numeracy, and social-emotional learning. Parents were interviewed regarding household socioeconomic conditions, reasons for school enrolment choices, children's general health and interest in attending school. A survey of parents' awareness of children's activities and learning outcome was conducted. The data were collected in home settings. The parent survey

Table 2
Percentage of missing response.

	Missing response rate
Children's assessment	0
Children's age	0
Children's gender	0
Children's school attendance status	0
Household assets	3%
Parent school attendance status	5%
Parent survey response	3%

was conducted before the children's tests were administered. All instruments had translated versions in Urdu, Punjabi, Gujarati and Hindi. The enumerators were given training and practice sessions to administer the data collection process in the language that was most appropriate for the understanding of child and parents. The assessments and parent surveys were taken in home settings instead of schools to maximise the chance of including children who are not enrolled in schools or even enrolled but not attending school.

The child assessment selected for this study was the International Development and Early Learning Assessment (IDELA) test, developed by Save the Children. IDELA has been adopted in at least 32 countries for assessing children's learning and development. Several studies have already been published in which this instrument has been used. The nature and research design of the studies vary. However, there is evidence that showed IDELA was successfully implemented with children, and clearly demonstrated children's early years of development and learning profile (Halpin et al., 2019). We piloted the assessment face-to-face and sometimes at a slight distance through mobile phone video call. We selected the most appropriate features of the assessment that could be implemented remotely using mobile phone and internet technologies where needed.

IDELA is a standardised test administered by a trained assessor to an individual child. We assessed three domains of learning in literacy, numeracy, social emotional development in early years. Literacy was assessed in terms of expressive vocabulary, letter identification, first letter sound identification, and listening comprehension. Numeracy was assessed as comparison by size and length, shape identification, number identification, simple operations, addition, and subtraction. Social emotional development was assessed in three sub-domains of self-awareness, social bonding, and recognition of emotions. In each learning domain the assessment scales were numerical values which were aggregated for each domain and for the overall learning scores. Details of the assessment scales and aggregates are available in Siddiqui et al. (2022).

Parental awareness survey items were selected from existing studies on parental awareness and beliefs of their children's academic abilities (Crookston et al., 2014; Dizon-Ross, 2019; Harris & Goodall, 2008). The survey items were translated in Urdu, Punjabi, Gujarati and Hindi. The response item scale was taking 0 to 10 where 0 was 'not at all' and 10 was 'a lot'. The assessors read the survey items to parents and in the assessor's training they were given clear guidelines in recording parents' response. Parents were shown the response item scales and the assessors shared an example of response rating. The assessors simplified the response rating wherever they found respondents were unable to decide. Where parents were unable to understand and respond on the scale, the assessors used their own judgement of parental awareness. We piloted the survey followed by re-wording some of the items for clarity and reduced the length of the survey.

The assessors were trained by leading research team members in India and Pakistan for implementing children's assessment and parental survey. In the training all enumerators were given clear instructions to conduct parental survey before implementing children's assessment. The purpose was to avoid bias of parents after observing children's response to the assessment. According to the assessors' reports parental survey was followed by children's assessment with a few exceptions where parents' availability for the survey participation was possible after the day of child's assessments.

Informal interview data were collected from parents regarding household socioeconomic conditions, reasons for school enrolment choices, children's general health and interest in attending school. Children were also involved in these discussions as far as possible depending on age.

4.2. Analyses

The descriptive analyses present the characteristics of children and parents in relation to children's learning outcomes. We then present correlations between parents' awareness of children's learning, children's school attendance status, and children's actual learning outcomes of children. The results from descriptive and correlation analyses present patterns of gaps in parents' awareness, children's school attendance status and children's learning outcomes.

The comparisons are also presented in the form of "Effect" sizes. The computed effect sizes are the difference between the means of two scores, divided by their overall standard deviation.

We present a linear regression model using all known variables as predictors of children's combined learning outcome as assessed by the standardised assessment IDELA. The predictors were added in four blocks of contextual information introduced in chronological fashion that can add meaningful explanation in the variation of R-square in each block. Any variable that did not improve the prediction was excluded from the model.

The study is not based on population data and the sample is not representative because of missing cases and missing data, using statistical tests are not appropriate choice for the analyses (Gorard 2016, 2019). We present raw effect sizes and odds ratio of the linear regression model as our main findings.

5. Results

5.1. Parental awareness

The results presented here show what forms parental awareness and how it reflects on patterns of children's access to school. We present descriptive findings explaining patterns of parental awareness in relation to children's characteristics, urban-rural settings and if parents attended school. Excerpts from interviews with parents are included as the information explains the results succinctly and with cultural relevance.

Table 3 shows parental awareness of children's academic potential. The effect sizes are slightly negative for boys which means parents perceived boys to be underperforming compared to girls. In SEL the effect size is a large positive showing parents perceived boys to be happier than girls while parents also perceived boys slightly ahead in recognition of emotions.

In the interviews with parents, it was clear that parents were making important decisions about children's education based on their understanding of children' potential, experiences, difficulties, and prospects of return. What parents knew about children's learning is typically informed by schoolteachers or what they perceived is better for children and the family.

A mother commented on her lack of learning as a barrier to support her children's work at school. It shows parents may perceive their own lack of education as a barrier, but it does not stop many parents from sending their children to school and trying hard to educate their children.

> I tried to keep my youngest daughter and son engaged in learning, but it is very hard. I don't know the syllabus. I don't know what

Table 3
Effect Size-Parental awareness of boys' academic potential.

Parental awareness	Effect size (Boys Vs Girls)
My child can read two/three words sentence (Literacy-Reading)	−0.05
My child can write two/three words sentence (Literacy-Writing)	−0.06
My child can count 0 to 10 (Numeracy)	−0.09
My child is happy (SEL)	0.12
My child can identify others' feelings happy/sad/angry (SEL)	0.04
My child has friends to play with (SEL)	−0.07

school wanted us to teach. They sent us things to teach but it is very hard to keep up the same way as done by schoolteachers.

Parents' awareness of children's learning potential has a direct impact on their chances of school attendance. In the interview excerpts below it is evident that parental awareness plays an important role in who should attend school and if it is worth investing if children do not show expected performances in schools. Parental awareness and subsequent decisions are guided by reporting from teachers and school experiences of children.

One of the daughters is very good in school and the teachers encouraged us to help her in coming to school every day. She is continuing school and we will do our best that she completes education. The older daughter was not good in getting good results. Teachers were not happy so I thought it is better to take her out from school and she could spend time in learning some other skills. Spending school fee on her was a waste of our limited income resources. She was not happy in school and never liked teachers.

Children's learning difficulties and experiences at schools are also important factors in their decision. The interview excepts shows that parental awareness of children's learning difficulties was informed by the child experiences at school. This form of parental awareness is not well-supported by school systems and ultimately becomes a strong reason for parents to stop sending their children to school.

My son is very naughty. The teacher once called him a 'nalaaik' (duffer) in front of whole class. He came back home and cried all day. He said to me that the teacher doesn't like him and now other students call him names. He was not happy in school.

My boy is slow and he does not talk much. I know that he is not like other kids. I enrolled him in a private school thinking that it could help. We sent him to school and each day after school the teacher complaint and used words for him such as 'kamzor' (weak, slow) and 'roni shakal' (cry face). I felt sad. I then sent him to mosque for learning Quran.

The data in Table 4 highlights that parents' awareness show negative effect size for children's learning outcomes in rural settings. These rural-urban differences are larger for children's academic learning and less so for social emotional learning.

School systems are less supported in rural areas and safety for children is a major concern for parents. Children not attending schools is mainly due to a lack of an established school system which is accessible and safe for children. To highlight this one mother commented:

In our village the environment is not good. Girls are not safe and that is one of the reasons that parents prefer early marriage of girls.

Children's school attendance is associated with their parents' school attendance status. However, this association is not always linear. As Table 5 shows that there are children who have never attended or dropout schools albeit both parents have attended school. The percentage of school attendance is higher where both parents have attended school. However, parent's education is not a definitive predictor of their children's school attendance. Perhaps children's school attendance is determined by household socioeconomic status rather than parents attended school or not.

In an interview with a father, the justification of not sending his children to school was based on perceptions and family traditions. These traditions influenced what he perceive is important for the child, their future and its benefit to the family.

School is for people who understand its value. No one in our family have gone to school and children just help their parents in farming, construction, fields and housework. Our children grow up learning these skills.

Table 4
Effect size-Parental awareness of children in rural settings.

Parental awareness	Effect size (Rural Vs Urban)
My child can read two/three words sentence (Literacy-Reading)	−0.33
My child can write two/three words sentence (Literacy-Writing)	−0.31
My child can count 0 to 10 (Numeracy)	−0.36
My child is happy (SEL)	−0.10
My child can identify others' feelings happy/sad/angry (SEL)	−0.09
My child has friends to play with (SEL)	−0.07

Table 5
Percentage-Children's school attendance and parents' school attendance.

	Children's school attendance		
Parent attended school	Never	Always	Dropouts
None	16	8	11
Both	55	73	72
One	24	14	15
Missing Information	5	4	2
Total	98	872	53

5.2. Children's learning outcomes and parental awareness

The data shows differences in learning outcomes of boys and girls (Table 6). These differences are very small in the early years of development. As shown in Table 3 parents awareness patterns are consistent with children's actual literacy and numeracy learning outcomes. Parents perceived girls to be behind boys in social emotional learning skills than boys. However, in the actual assessment boys were not achieving as good as girls. In many poor countries the patterns of achievement show negative results for girls in primary and secondary school outcomes. However, this study shows that girl's achievement in early years of schools is slightly ahead of boys which is a general pattern. The later patterns of underachievement can be explained by under-resourced school systems and attitudes to girls' education.

The data set out in Table 7 shows moderate to low positive associations between parental awareness and children's outcomes in literacy, numeracy, and social emotional learning. Within the assessed learning domains parental awareness is more positively associated with literacy than numeracy and it is the lowest for non-cognitive outcomes. IDELA Total is the combined score of children's overall learning. The correlations are consistent between parental awareness, three learning outcomes and overall learning measured by the standardised test. However, the association is not strong, and this will be discussed in the following sections.

Table 8 presents Pearson's correlation between children's mean scores in overall learning outcomes and parent's report of their school attendance status. Children scored high if both parents attended schools. However, the second highest score is for children where none of the parents have attended school. This suggests that parent's education is not a best predictor of children's learning outcomes.

Interview with some parents showed that their own experience of not

Table 6
Effect size learning outcomes for boys.

	Boys		Girls		Effect Size
	Means	Standard Deviation	Means	Standard Deviation	
Literacy	58.73	28.48	61.56	28.38	−0.10
Numeracy	77.62	23.88	78.90	24.38	−0.05
SEL	59.07	20.13	61.19	19.91	−0.11

Table 7
Correlation- Parental awareness, Learning outcomes and Combined IDELA.

Parental awareness	Learning outcomes	IDELA Total
	Literacy	
Literacy (Reading)	0.58	0.59
Literacy (Writing)	0.62	0.64
	Numeracy	
Counting (Numeracy)	0.54	0.55
	Social Emotional Learning (SEL)	
SEL (Child is happy)	0.30	0.31
SEL (Child identify feelings)	0.43	0.54
SEL (Child plays with friends)	0.25	0.38

Table 8
Parent attended school and Children's learning outcomes.

Parent attended school	IDELA Learning Outcomes		
	Mean Scores	N	Std. Deviation
None	62.68	115	22.78
Both	69.10	687	20.60
One	59.55	179	22.17
Missing Information	56.78	42	20.36
Total	66.20	1, 023	21.53

given the opportunity of attending school reinforced their choice for children to seek school education. However, in the regression model, after controlling socioeconomic status and other characteristics of children, parents' non-attendance of school did not add any explanation in children's learning outcome (See Table 10).

A father commented:

> I never attended school. My parents didn't have enough money to pay our schools fees and buy books or uniforms. I want my children to attend school, so they don't have to work like me. I am trying my best they receive the best education which I could never get.

A mother commented:

> I work as a cleaner in homes so that I can pay my children's school expenses. I have completed primary school in village, but my husband never attended school. My only dream is that my children should complete school and go to colleges. It is the only reason our family moved to city so that we can earn money and send children to proper schools. It is hard but we want to educate our children so that they don't have to go back to the village where there are no jobs and just work in the fields with not much financial profit.

Early childhood and primary school years are important for development when children are highly receptive. Both parents educated can accelerate children's learning potential. However, children's learning is not entirely dependent on parents' education and these findings show that the learning gaps are narrow in early years of education.

5.3. Multiple regression model predicting IDELA results

We included four blocks of information in the multiple regression model using IDELA scores as a dependent outcome. The blocks used stepwise forward option which means the predictors were added one by one, explaining the variation on dependent outcome. The predictors which did not add any explanation in the outcome are excluded from the model. R^2 explains the variation by each block while R^2 change explains how much each block is accounting for the variation. Table 9 shows summary of the regression model. R^2 0.58 is the maximum variation explained which means that a lot remains unexplained about children's learning outcome even after knowing the details and characteristics that we have included in the model. Block 1 and Block 3 account for maximum change is R^2.

Parental awareness explains maximum variation in the model after controlling for child and family background characteristics. The model is based on cross-sectional design therefore we can only interpret that parental awareness of children's learning outcomes have low to moderate level of explanatory power. The more parents are aware the more likely children's outcomes will correspond with their awareness. Table 10 shows coefficients of each predictor in the model. The coefficients can be interpreted as effect size.

Children's learning outcomes are not strongly associated with their sex. Coefficients showed slight positive outcomes for girls and the model excluded boys as this information did not add any explanation in the dependent outcome. Children's age showed positive coefficient which means older children performed higher score in the overall learning outcome. Children living in urban locations showed slightly stronger positive coefficient.

Parents school attendance status does not add much explanation and both parents attended school is excluded from the model because this information did not add any explanation in the dependent outcome. However, one parent attended school showed small negative coefficient while no parent attended school showed no pattern of positive or negative association. Household socioeconomic status showed some low positive coefficient possibly this is after controlling for urban rural locations.

Parental awareness of children's writing and numeracy skills showed stronger positive coefficients. This could be related with the nature of these skills. Parents know by observation of children if their children can count and write. Parents' knowledge of children's social emotional skills showed slight opposite results than that of their academic skills. Parents awareness of children's playing with friends showed stronger positive association with children's learning outcomes.

Children always attended school showed moderate positive

Table 10
Coefficients for models.

Model	Unstandardized Coefficients	Standardised Coefficients
Child		
Child Girl	1.86	0.04
Child age in years	1.93	0.12
Rural	4.22	0.10
Urban	6.16	0.14
Parents and Household		
Sum of assets (maximum 14)	0.74	0.10
One parent attended school	−2.47	−0.04
No parent attended school	−0.12	0.00
Missing information	3.30	0.02
Parental Awareness		
Literacy (Reading)	0.09	0.02
Literacy (Writing)	1.18	0.21
Counting (Numeracy)	0.94	0.12
SEL (Child is happy)	−0.10	−0.01
SEL (Child identify feelings)	−0.15	−0.02
SEL (Child plays with friends)	2.65	0.36
Child School Attendance		
Always	5.31	0.12
Never	−3.97	−0.06
Dropout	−3.79	−0.04

Table 9
Model summary.

Model Summary	R Square	R Square Change
Block 1: Child characteristics	0.17	–
Block 2: Parent school attendance and Household Assets	0.26	0.08
Block 3: Parental awareness	0.56	0.31
Block 4: Child school attendance status	0.58	0.02

coefficient and those who never attended school or drop out from school showed small negative coefficients. The effect of school attendance is reasonably clear after the model controlled for all known information about the children, parents, and household characteristics.

6. Limitations of the study

The study is cross-sectional design of a large sample, but not sufficient representation of parents, children and household groups discussed in this study. The results only indicate associations and patterns and do not draw any causal claims on children's learning outcomes due to parental awareness.

Parent survey and children's assessments were administered by trained enumerators and the process was based on a standardised protocol. However, the data was collected in real life settings and there could be subversions from the standard protocol such as parents observed children's performance in the assessment before they completed the parental survey. This could have influenced parents' awareness. As far as known from enumerators' feedback, there were not many subversions from the protocol.

7. Conclusion

This study shows parental awareness of children's learning are associated with their actual learning outcomes. The descriptive analysis shows moderate to low positive associations between parental awareness and children's outcomes in literacy, numeracy, and social emotional learning. Within the assessed learning domains parental awareness is more positively associated with literacy than numeracy and it is slightly negative for non-cognitive outcomes. In the linear regression model children's age, urban-rural differences and parental awareness remained important predictors of children's learning outcomes. However, the strength of relationship is not strong and the variation in the learning outcomes remained unexplained. There are gaps in parental awareness and children's learning outcomes therefore parental awareness is not a good predictor of children's learning in early years of education.

Parents who attended school and had experience of formal education are most likely to support children's learning. Undoubtedly parental education is the most important lever of intergenerational social mobility. However, in poor countries where parents have not received formal school education raising parents' awareness of children's education and involving them in children's learning progress can possibly overcome gaps. This research has shown that parental awareness of children's learning explains their actual learning outcomes more than parents' attendance of school. Parents aware of children's learning potential and progress at school can be a motivating factor for parents to invest in children's education and support children's learning by all possible means.

Parents' school attendance status is often considered most important explanation of children's learning performance and often seen as the baseline determinant of inequalities impacting on children's outcomes. This study shows that both parents attended school is only a proxy of socioeconomic wealth. Households lacking in parental education can perhaps support children's learning, but they depend more on schools to play its role and provide learning which is missing in home environment. Parental awareness of children's learning outcomes can slightly advantage children's learning, but parental education seems less relevant.

Narrative interview of parents who did not attend school but investing in their children's education showed that they were motivated by seeing their children's progress in school and had realisation that education can benefit children for a better future than they had. This awareness is a perceived understanding of education and its lifelong benefits for their children. Increasing parental is perhaps immediate and cost effective than parental education programmes. These findings are important for the policy and practice of increasing education enrolment rate and improving attendance at school.

CRediT authorship contribution statement

Nadia Siddiqui: Conceptualization, Formal analysis, Writing – original draft, Project administration, Writing – original draft. **Pauline Dixon:** Conceptualization, Supervision, Writing – review & editing. **Stephen Gorard:** Validation, Methodology.

Declaration of competing interest

Authors have no conflict of interest in this study findings.

Abbreviations

IDELA	International Development and Early Learning Assessment
SEL:	Social Emocional Learning

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