Journal for Re Attach Therapy and Developmental Diversities
eISSN: 2589-7799
2023 August; 6 (9s2): 1429-1436

Achievement Gap for PA Skill in Hindi Speaking 5-6 years Old Children of Low Socio Economic Status in Central Uttar Pradesh

Neha Rawat[1], U.V. Kiran[2]

[1] Research Scholar, Department of Human Development and Family Studies, Babasaheb Bhimrao Ambedkar University, Lucknow, India

[2] Professor, Department of Human Development and Family Studies, Babasaheb Bhimrao Ambedkar University, Lucknow, India

Email: [1] neha.rs.hdfs@email.bbau.ac.in

Received: 19- June -2023
Revised: 02- July -2023
Accepted: 10-August-2023

Abstract

Phonological awareness (PA) skills during the early years are key predictors of literacy development. Among the many factors deleterious to PA development, socio economic status (SES) is cited as an important factor. This study aimed at assessing the PA skills in 5-6 years old Hindi speaking kindergarten children of low SES in Lucknow. Additionally, the relational aspects of gender and PA skills were also analysed. A test consisting of items at rhyming, word and syllable level was developed and standardised for 5-6 years old children. This test was administered to 5-6 years old children (n=96) with a mean age of 5years 7months and a mean SES score of 8.49 from two randomly selected private schools in the low SES neighbourhoods. Upon analysis, children of low SES were found to have deficient PA skill (mean =8.56) with no significant gender wise difference ($p \geq .05$). The deficits in PA skill of children belonging to low SES which make them vulnerable to develop reading difficulties in later school years. The knowledge of deficits helps in early identification of children at risk of reading difficulties and appropriate curriculum modification for effective transactional pedagogy.

Keywords: Literacy, Phonological Awareness, Socioeconomic Status, Curriculum, Reading Difficulties

1. Introduction

Literacy is a multidimensional and active process with cognitive, social, linguistic, and psychological aspects (Teale & Sulzby, 1989). Strong Foundational literacy prepares children for future academic skills and is also critical for educational outcomes in later years. Education is a key factor in eradicating poverty and improving the quality of life of children especially those belonging to low socioeconomic status (SES). SES, operationalised as a combination of education, income & type of job, is a measure of an individual's or group's standing in the community. It encompasses not just income but also educational attainment, financial security and subject perception of social status and social class. Lower socio economic status is characterised by numerous physical and psychosocial stressors rather than being caused by a single factor. Furthermore, a wide range of outcomes across the life span, including physical and mental health, are consistently and accurately predicted by SES.

McLaughlin and Sheridan (2016) assert that SES is directly related to educational success. SES has been found to have a significant effect on language development (Noble et al, 2005). Research has shown that children from low SES families and communities exhibit slower trajectories of literacy growth and develop academic skills a little slower than those belonging to higher SES (Farkas et al., 2009; Hecht et al., 2000). These children are the victim of the opportunity gaps or poor availability of educational resources such as books and instructional material, professional resources such as teachers trained in instructional quality. Conventionally, children who grow up in lower-income homes also frequently reside in underserved communities with underfunded schools and learning resources like libraries and after-school programs. In a number of low SES communities, school systems frequently do not have adequate funding and this has been detrimental to their educational progress and outcomes in later years. Teachers in low-resource schools are less likely to be qualified and competent (Clotfelter et al.,2006). Also, they typically have less explicit knowledge of the linguistic constructs that contribute to literacy, and may therefore rely on non-evidence-based instructional practices. Neuman et al (2018) mentioned that children attending schools in lower-SES neighbourhoods are typically exposed to less complex literacy-supporting language in the classroom. Children's academic achievement is affected by inadequate education perpetuating the

low-SES status of the community. Home literacy environment, number of books, and parental distress were correlated with initial reading competence as poor household have less access to learning material and experiences of reading to create positive literacy environment (Van Bergen et al., 2016). According to Buchingham et al. (2013), children from low-SES families are less exposed to stimulating environments and experiences that encourage the development of fundamental pre-literacy skills such as PA, vocabulary, and oral language.

Together, these opportunity inequalities in literacy teaching for students in schools may compound pre-existing disparities before students enter the school system and result in long-lasting socioeconomic discrepancies in reading achievement.

Given the importance of reading as a gateway to learning in both academic and non-academic contexts, children who have trouble learning to read are vulnerable both directly and indirectly. In order to be prepared for later school and to succeed academically, it is essential to develop adequate literacy. Early development of emerging literacy abilities, such as phonological awareness lays a crucial foundation for subsequent reading skill.

Phonological awareness, an umbrella term used for skills encompassing awareness of spoken sounds, identification, and manipulation ability, is an important fundamental pre-literacy skill that has a reciprocal relationship with reading. It is a skill to recognize that oral language has words, syllables, and sounds. Most programs developed to foster oral language skills have focused only on phonological awareness and vocabulary outcomes (Henning et al. 2010, Neuman & Dwyer, 2009).

The SES is related to reading findings imply that SES may have direct effects on children's reading ability as well as indirect effects through children's PA and vocabulary knowledge. A study by Mc Dowell et al. (2007) proved that SES contributed to the prediction of unique variance in the prediction of PA among children aged 2-5 years. The effects of SES on PA were found to be amplified by age. Narasimhan et al. (2010) found high scores on subtest of PA in the test of LD for normal children aged 6-14 years belonging to middle SES as compared to those belonging to low SES.

There is significant evidence in a largely distinct line of research essential for the successful development of reading proficiency. Kindergarten PA predicts teenage reading ability more accurately than does kindergarten reading ability (MacDonald &Cornwall,1995). The association of SES with reading is evident through it's contribution to the development of letter knowledge and phonemic skills, which, in turn, contributes to the development of good reading skills.

In India, many policies and acts have designed and documented a structured framework for the facilitation of learning skills and envisioned age-appropriate skills for children. Padhe Bharat Badhe Bharat (PBBB, 2014) has early reading as one of the tracks. Similarly, Vidya Pravesh, an essential component of National Initiative for Proficiency in reading and numeracy (NIPUN) intends to address the developmental and learning needs of all children who are ready to enter Grade I. Initiatives such as NIPUN and Combined preschool curriculum by NCERT (2019) provide pedagogical guidelines with activities for the facilitation of PA to facilitate the development of phonological awareness skills.

Emphasis on the development of PA skills in these documents reflects the need for knowledge among teachers to facilitate foundational literacy skills such as oral and reading readiness skills.

After the implementation of the NIPUN by NCERT, National Curriculum Framework in concurrence with National Education Policy 2020 was formulated. Surveys conducted by NCERT and other agencies show that despite completing primary school, children are unable to read. Studies are constantly drawing attention to the grim reality of reading in the early classes. Deficient foundational skills, such as readiness skills like PA, put the children at risk of developing reading difficulties. Lack of early, high-quality, systematic language intervention may cause early children's language issues to persist in elementary school, which could result in reading difficulties and academic failure [Catts et al 2000].

The most exciting finding emanating from research on PA is that through carefully planned instructions, critical levels of Pa skills can be developed. Depending upon the existing deficits found in children at risk of reading difficulties, the degree of explicitness and structure of the PA instruction could be ascertained (Smith et al., 1998).

The importance of using vernacular language has been emphasized in NEP 2020. For children to become efficient readers in the Hindi Language, their phonological awareness skills need to be facilitated. Hindi speaking children should be tested with a tool standardized on Hindi speaking children to determine skill deficits. The scarcity of rigorously conducted empirical studies that focus on disadvantaged young children speaking Hindi is surprising. In India, although there are studies concerning children with low SES, the generalization of the results is limited because of the type of test tools used in the studies, number of participants and type of scale used to determine SES, lack of a standardized yardstick for comparing these studies. With variations in the number of participants, the tools for the assessment of SES and pre-literacy skills, the drawn inferences are less reliable.

Facilitation can be more effective if the current level of skill acquisition is determined using a standardized test tool. This study aimed to determine the PA level of children belonging to low SES in the age group–5-6 years old using developed and standardized test. Since, there was no published standardised tool developed in Hindi language, there was a need to develop a test tool. Additionally, the gender differences for the various subitems and total scores was also analysed.

We investigated these research questions:

1) What is the skill level for PA skill for native Hindi speaking 5-6 years old kindergarten students?

2) Do children belonging to low SES have the same skill level?

2) Does gender predict PA scores for 5-6 years children belonging to low SES?

2. Method

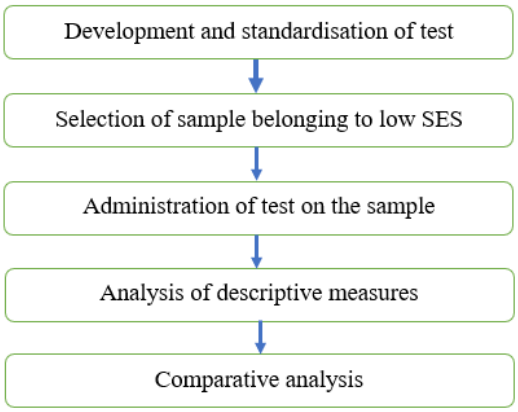

Figure 1- Steps taken in the study

Development and standardisation of test

The development and standardisation of the test followed a systematic procedure including content analysis using I-CVI (ratio of the the experts in agreement divided by the number of experts),, two rounds of evaluation of items by experts, randomised sample selection, administration of test items on the selected sample (N= 270 with 90 children in the three age groups namely 3 years 0 months to 3 years 11 months, 4 years 0 months to 4 years 11 months and 5 years 0 months to 5 years 11 months). For each task, practice items were provided followed by test items. Each correct response was given a score of 1 while a score of 0 was given for each incorrect response. Following were the test items used for the children in the 5-6 years age group.

(a) Rhyme Discrimination - For Rhyme Discrimination task, children were asked to listen carefully to the two words. They were asked to tell whether the two words rhyme or not.

(b) Rhyme Oddity - For this task, children were asked to listen carefully to the three words out of which two will be rhyming words and one will be odd one out. They were asked to tell which word did not match with the other two. The children responded by saying the word which they thought was odd.

(c) Rhyme Word Generation- For this task, children were asked to provide rhyming words for the given words. They were presented with two practice items.

(d) Syllable Blending – In syllable Blending task, children were asked to listen carefully to the broken words and they would tell the words by joining them. The items had bi-syllabic and multisyllabic words.

(e) Syllable Segmentation – For this task, children were asked to listen carefully to the presented words. They were instructed that they would be asked to tell either the first or the last part of the given word. There were 2 Practice items and 5 test items.

(f) Word Counting – This is a word level task. Children were asked to carefully listen to the sentences. They were then told to count the number of words in each sentence. The length of the sentences ranged from 2 words to 5 words.

(g) Word Deletion –. The children were asked to carefully listen to the words. They were then asked to repeat the word after the tester. Then, the tester said "Now, say the word again without …(first or second part of the word). The to- be -deleted word could be the first or the second part of the compound word. The maximum score was 2 out of which there were 1 item for the first word deletion and 1 item for second word deletion.

(h) Word Substitution - The children were asked to carefully listen to the words. Practice items were introduced. They were then asked to repeat the presented word after the tester. Then, the tester said "Now, put …(a new word) in place of …(part of the word) and say the word again.

(i) Word switching in a sentence– Small sentences of 2-3 words were taken for the task. Children were asked to switch the places of the asked words in the given sentences.

Sample selection for the development and standardisation of test

Hindi speaking children in the age group of 5-6 years who spoke Hindi with their parents, peers, friends and teachers at home and school were selected. These children were screened for hearing, language skill and any other sensory issues. The screening for any sensory impairments and language development by a Rehabilitation council of India registered Audiologist and Speech Language Pathologist. Children who passed hearing screening on four frequencies (threshold of ≤ 20 dB at 500 Hz, 1 KHz, 2 KHz and 4 KHz) as assessed by a licensed Audiologist using portable audiometer, adequate language skill tested on Comprehensive Language Assessment Tool (CLAT) and no speech disorder were selected for the administration of the test. It was reported by the teachers that children in the 5 years 0 months to 5 years11 months bracket were exposed to reading and writing of English words, they used only Hindi as a language of communication with friends and teachers. Also, only Hindi was used as the medium of instruction with the children with the exemption of a few familiar English words and common phrases.

A psychometrically sound tool with tasks at different linguistics levels to measure phonological awareness skills of native Hindi-speaking children was developed. Analysis of the data included descriptive measures including the t-test and calculation of Cronbach alpha along with Standard Error of Measurement (SEm). The Cronbach alpha was found to be 0.81, indicating high internal consistency. The SEm was 0.70, which indicates good reliability of the test. The data was analysed and compared across age and gender. After the development and standardisation of the test, normative values in the form of descriptive statistical measures such as mean and standard deviation were obtained for each test item and total scores for all the subjects.

Administration of test on children belonging to low SES

Sample selection

Schools catering to children from lower socio economic status in the Lucknow District were enlisted and two schools were randomly selected. In addition to the criteria of children belonging to upper lower SES assessed using Modified Kuppuswamy Scale (Kumar et al 2022), the inclusion criteria for selecting children was similar to the one used for the sample selection during the development and standardisation of the test. After receiving consent from the school authorities, ninety six (96) children in the age group of 5-6 years were included in the study who fulfilled the inclusion criteria. Modified Kuppuswamy scale is scored on the basis of Education of the

head, occupation of the Head of the Family and total monthly income of the family. The children belonged to upper lower SES of the society with the mean score to be 6.49. The mean age of the children was found to be 5 years 7 months.These children were then tested for the study. The parents of the selected children were informed of the study objectives and consent for participation was obtained.

Administration of test on the sample- The developed test was administered on the sample. The scores of the respondents were compiled and tabulated. Statistical analysis was then done for description and comparison.

3. Results

The individual item score and mean total scores of the respondents were compared with the descriptive measures of the developed test. The individual item mean scores on the developed test and the sample are provided in Table 1. The mean total score of the normative obtained through standardisation was found to be 23.43. For the children belonging to low SES, the total mean score was 8.56. The performance of children for subtests at rhyme, syllable and word level activities are also displayed. Among the rhyme level activities each with the maximum score of 5, children belonging to low SES performed poorly on Rhyme word generation (RWG) with the mean score of 0.75 followed by rhyme oddity task with the mean score of 0.86. For the syllable level tasks, the mean score of low SES children on syllable blending and syllable segmentation was found to be 3.67 and 2.1 respectively. On the contrary, on the word level tasks such as word counting, the performance of children belonging to low SES was 1.9 as against the population mean score of 2.77. On the other word level tasks such as Word deletion, word Substitution and Word Switching each with the maximum score of 2, very less number of children in the sample could answer correctly with the mean score of 0.87, 0.43 and 0.32 respectively. T test was done to determine the significance of the difference between the means of children from low SES and population mean. The *p* value for the total scores was found to be 0.00 ($p \leq 0.01$ **) indicating that the total mean scores obtained by the children from low SES was significantly lower than the normative score implying that the children belonging to low SES underperformed on the test.

Table 1- Normative total mean scores and item score of children on the developed test scores

	mean	RD	RO	RWG	WC	WD	WSub	WSw	SB	SS(I &F)
Max scores	34	5	5	5	5	2	2	2	5	5
normative score on test	23.43	3.83	1.67	3.27	2.77	1.37	1.03	1.27	4.86	3.83
Scores of children from low SES	8.56	1.3	0.86	0.75	1.9	0.87	0.43	0.32	3.67	2.1

Gender wise performance analysis

Comparing the scores obtained by males and female children from low SES, it is observed that the descriptive statistical measures, mean and standard deviation, obtained by girls (n= 39) and boys (n= 57) are 7.94 ±4.98 and 8.97±5.19 respectively. The significance of difference between the mean scores of females & males from the sample was computed using independent sample t test. The t value of 1.02 and $p = 0.30$ ($p>.05$) indicated that there is no statistically significant difference between the scores of males and females children belonging to low SES. The significance of difference between the mean total score of males and females of the population was found to be statistically insignificant.

Table 6- The mean value of the total scores obtained by the male and female children of various age groups on various task under PA skills. The values are shown as Mean and SD. The significance of difference between the mean was computed by the t test.

	Scores obtained from sample students studying in aided school		Total scores obtained from population (male and female)	
	M(57)	F(39)	M (90)	F (90)
Mean of the total Score	7.94 ±4.98	8.97±5.19	27.8±5.040	26.06±6.08
Test of significance	$p>.05$		$p>.05$	

4. Discussion

Among various factors affecting the development of PA, socio economic status has an important role to play. Analysing the performance scores of students belonging to low socioeconomic status families and and studying in neighbourhood schools, the results are in concurrence with the studies which have documented that low SES has critical effects on the development of PA skills (Lundberg et al 2012 ; Mc Dowell et al 2007). The requirement of children belonging to low SES and having deficient foundational skills would differ from other children as their deficits in the foundational skill are substantial and pose threat to their future reading skill. The t-test of significance (p>.05)pointed out that both males and females performed at a similar level and there was no statistically significant difference between the scores obtained by males and females. For the normative male and female scores, the scores across gender revealed similar results.

Considering the effects of socio-economic status on the development of an important pre literacy skill such as phonological awareness stresses that the curriculum must focus on the facilitation of the development of these skills among underprovided children. The teacher's knowledge, school environment, facilitation methods and already acquired knowledge of children play a critical role. The obtained results indicate that children belonging to low socio-economic status underperform on the PA skill. This study through its findings draw our attention to the reality of deficit in the foundational skill. Also, the developed test tool provides a yard stick for uniform assessment of this skill in Hindi Speaking children. With the developed and standardised test, the inferences drawn could be more reliable and the future research using the developed test could explore other variables detrimental to the development of PA skill.

5. Conclusion

This study was done to understand if children belonging to low SES have adequate skills important for future reading skills. A test was developed and standardised for the purpose of assessment of PA skill in Hindi speaking children. Children belonging to low SES communities and studying in neighbourhood schools were tested. Their phonological awareness skills were found to be poorer highlighting various opportunity gaps at home and at school. Discussing the reasons for the poor performance of PA skill, many factors such as poor home literacy environment, non-availability of resources at home and school to foster reading readiness and most importantly teachers' knowledge could be considered as possible reasons for the deficits in PA skill development.

Some of the risk factors may be reduced with enhanced school systems and early intervention programmes. Moreover, factors strategic steps to improve the quality of schools in low SES neighbourhoods must be implemented include teacher training, establish and maintain information rich environment, continuous professional development, parent involvement and fund allocation (Muijs et al 2009). Additionally, the teacher training institutions offering Bachelor in Education, Basic Training Certificate, Diploma in Elementary Education and Diploma in Early Childhood and Care Education need to emphasis upon raising the standard of education and training of future teachers who could be instrumental in facilitating the development of readiness skill in general and reading readiness in specific. Such measures employed by Institutions and monitored by Government would ensure professional competence. It is also suggested that in-service training of teaching professionals is the need of an hour. In private school, the in-service training is observed strictly adhering to the guidelines of Central Board of Secondary Education. But prerimary education seems to be neglected by neighbourhood schools which mushroom around the low SES communities as creche or children's care center. Despite the efforts of government such as establishment of aanganwadis and their training, the challenges mount upon the successful implementation of programs and are reflected by poor development of critical skill among children. These children are at risk of developing reading difficulties which persist in later academic life and hinders academic growth. Hence, it is important to carry out more research on the correlation among reading skills in higher education levels and SES. SES is a multivariate domain. The individual and combined effects of variables on the PA skill should be discussed in future studies.

References

[1] Buckingham, J., Wheldall, K., & Beaman-Wheldall, R. (2013). Why poor children are more likely to become poor readers: The school years. *Australian Journal of Education*, *57*(3), 190-213.

[2] Catts, H.; Fey, M.; Proctor-Williams, K. The relationship between language and reading: Preliminary results for a longitudinal investigation. Logop. Phoniatr. Vocol. 2000, 25, 332–343.

[3] Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2006). Teacher-student matching and the assessment of teacher effectiveness. *Journal of human Resources*, *41*(4), 778-820.

[4] Dicataldo, R., Florit, E., & Roch, M. (2020). Fostering Broad Oral Language Skills in Preschoolers from Low SES Background. *International journal of environmental research and public health*, *17*(12), 4495. https://doi.org/10.3390/ijerph17124495

[5] Dicataldo, R., Florit, E., & Roch, M. (2020). Fostering Broad Oral Language Skills in Preschoolers from Low SES Background. *International journal of environmental research and public health*, *17*(12), 4495. https://doi.org/10.3390/ijerph17124495 (with numbers)

[6] Hecht, S. A., Burgess, S. R., Torgesen, J. K., Wagner, R. K., & Rashotte, C. A. (2000). Explaining social class differences in growth of reading skills from beginning kindergarten through fourth-grade: The role of phonological awareness, rate of access, and print knowledge. *Reading and writing*, *12*, 99-128.

[7] Henning, C.; McIntosh, B.; Arnott, W.; Dodd, B. Long-term outcome of oral language and phonological awareness intervention with socially disadvantaged preschoolers: The impact on language and literacy. *J. Res. Read.* **2010**, *33*, 231–246

[8] https://ncert.nic.in/dee/pdf/Combined_Pre_school_curriculumEng.pdf

[9] https://ncert.nic.in/pdf/VidyaPravesh_Guidelines_GradeI.pdf

[10] https://www.dyslexiaindia.org.in/significance-of-phonological-awareness2.html

[11] https://www.education.gov.in/sites/upload_files/mhrd/files/nipun_bharat_eng1.pdf

[12] https://www.researchgate.net/publication/363653443_Foundational_Learning_Report_Uttar_Pradesh

[13] Kumar, G., Dash, P., Patnaik, J., & Pany, G. (2022). Socioeconomic status scale-Modified Kuppuswamy Scale for the year 2022. *International Journal of Community Dentistry*, *10*(1), 1-6.

[14] Lundberg, I., Larsman, P., & Strid, A. (2012). Development of phonological awareness during the preschool year: The influence of gender and socio-economic status. *Reading and writing*, *25*, 305-320.

[15] Lundberg, I., Larsman, P., & Strid, A. (2012). Development of Phonological Awareness during the Preschool Year: The Influence of Gender and Socio-Economic Status. Reading and Writing, 25, 305-320. http://dx.doi.org/10.1007/s11145-010-9269-4

[16] McDowell KD, Lonigan CJ, Goldstein H. 2007. Relations among socioeconomic status, age, and predictors of phonological awareness. J. Speech Lang. Hear. Res. 50:1079–92

[17] McDowell, K. D., Lonigan, C. J., & Goldstein, H. (2007). Relations among socioeconomic status, age, and predictors of phonological awareness. *Journal of speech, language, and hearing research: JSLHR*, *50*(4), 1079–1092. https://doi.org/10.1044/1092-4388(2007/075)

[18] McLaughlin, K. A., & Sheridan, M. A. (2016). Beyond cumulative risk: A dimensional approach to childhood adversity. *Current directions in psychological science*, *25*(4), 239-245.

[19] Morgan, P. L., Farkas, G., Hillemeier, M. M., & Maczuga, S. (2009). Risk factors for learning-related behavior problems at 24 months of age: Population-based estimates. *Journal of abnormal child psychology*, *37*, 401-413.

[20] Muijs, D., Harris, A., Chapman, C., Stoll, L., & Russ, J. (2004). Improving schools in socioeconomically disadvantaged areas–A review of research evidence. *School effectiveness and school improvement*, *15*(2), 149-175.

[21] Neuman, S. B., Kaefer, T., & Pinkham, A. M. (2018). A double dose of disadvantage: Language experiences for low-income children in home and school. *Journal of Educational Psychology*, *110*(1), 102.

[22] Neuman, S.B.; Dwyer, J. Missing in action: Vocabulary instruction in pre-K. *Read. Teach.* **2009**, *62*, 384–392.

[23] Noble, K. G., Norman, M. F., & Farah, M. J. (2005). Neurocognitive correlates of socioeconomic status in kindergarten children. *Developmental science*, *8*(1), 74-87.

[24] Romeo, R. R., Uchida, L., & Christodoulou, J. A. (2022). Socioeconomic status and reading outcomes: Neurobiological and behavioral correlates. *New directions for child and adolescent development*, *2022*(183-184), 57–70. https://doi.org/10.1002/cad.20475

[25] Snow, C. E., Burns, M. S., & Griffin, P. (1998). Preventing Reading Difficulties in Young Children. Washington DC: National Research Council.

[26] Van Bergen, E., van Zuijen, T., Bishop, D., & de Jong, P. F. (2017). Why are home literacy environment and children's reading skills associated? What parental skills reveal. *Reading Research Quarterly*, *52*(2), 147-160.