

## Comparison of Social Quotient Among School-Going and Out-of-School Children Attending a Tertiary Care Hospital: A Cross-Sectional Study

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### Abstract

#### Background:

Social Quotient (SQ), derived from adaptive behaviour assessments, reflects age-appropriate social functioning. While formal schooling is considered central to social development, children outside school may develop practical independence through early responsibilities. The study aimed to compare the Social Quotient among school-going with out-of-school children attending a tertiary care hospital and to examine its association with socioeconomic and demographic factors.

#### Methods:

A total of 300 children aged 6–14 years were included, comprising 150 school-going and 150 out-of-school children. Social competence was assessed using the Vineland Social Maturity Scale (VSMS) through structured caregiver interviews. Social Age and Social Quotient were calculated using standard methods.

#### Results:

The mean age was comparable between school-going ( $8.95 \pm 2.39$  years) and out-of-school children ( $9.47 \pm 2.34$  years). Out-of-school children had significantly higher Social Quotient scores than school-going children ( $105.18 \pm 3.35$  vs  $96.30 \pm 4.96$ ,  $p < 0.001$ ). This pattern was consistent across all age groups (6–14 years). Within socioeconomic strata (Kuppuswamy classification), out-of-school children maintained higher SQ scores across most categories. Gender did not significantly influence SQ, with similar scores observed in males and females.

#### Conclusion:

Out-of-school children demonstrated significantly higher Social Quotient scores compared to school-going children, independent of age and gender. These findings suggest that early life responsibilities and real-world adaptive experiences may enhance practical social competence outside formal schooling.

**Keywords:** Social Quotient, social competence, Vineland Social Maturity Scale, school-going children, out-of-school children, child development.

## INTRODUCTION

Social competence refers to a child's ability to communicate, cooperate, and interact effectively within social environments and is an important determinant of healthy psychosocial development [1]. Social Quotient (SQ) is a measure of adaptive social functioning that reflects how successfully a child performs age-appropriate social responsibilities and daily living activities [2].

Schools play a central role in promoting social competence by providing opportunities for peer interaction, cooperative learning, and social participation. Positive social competence has been associated with better academic achievement, improved peer relationships, and favourable behavioural outcomes [3].

Despite the recognized benefits of schooling, a substantial number of children remain outside the formal education system because of socioeconomic disadvantage, chronic illness, disability, migration, or family responsibilities [4]. Children who are out of school may have fewer opportunities for structured social learning but may acquire practical life skills and independence through participation in household and community activities [5].

Tertiary care hospitals represent unique settings for studying social competence among children. Such hospitals cater to children from diverse educational and social backgrounds, including those whose schooling has been interrupted because of chronic health conditions. Educational disruption associated with illness and repeated hospitalisation may influence social development and adaptive functioning [6].

Social competence is shaped by multiple environmental influences, including family relationships, social interactions, and learning experiences [7]. Assessment of SQ can therefore provide valuable insight into the

impact of educational exposure and life experiences on adaptive behaviour. The Vineland Social Maturity Scale remains one of the most widely used tools for evaluating social maturity and adaptive functioning in children [2]. The issue is particularly relevant in low- and middle-income countries, where educational discontinuity remains a significant challenge. According to the UNESCO Global Education Monitoring Report, poverty, social disadvantage, and health-related factors continue to contribute substantially to school exclusion and interrupted education [4].

The present study was undertaken to assess Social Quotient among children attending a tertiary care hospital and to compare SQ between school-going and out-of-school children across different age groups.

## MATERIALS AND METHODS

This hospital-based analytical cross-sectional study was conducted in the Department of Paediatrics of a tertiary care hospital in North India, from April 2024 to November 2025. Ethical approval was obtained from the Institutional Ethics Committee and the research was carried out following the guidelines of the ethics committee as listed in the ethics statement and was in accordance with Helsinki Declaration. Written informed consent (attached) was taken from parents or guardians of all children who participated in the study.

Children aged 6–14 years attending the pediatric outpatient and inpatient departments were included. Children with severe illness, diagnosed developmental delay, psychiatric illness, substance addiction, or disrupted family settings were excluded. A total sample size of 300 was calculated based on previously reported differences in mean social maturity scores, with 95% confidence level and 90% power. The study included 150 school-going and 150 out-of-school children enrolled consecutively.

School-going children were defined as those currently enrolled in and attending school, while Out of school child is defined as a child 6-14 years of age who has never been enrolled in an elementary school or if after enrolment has been absent from school without prior intimation for reason of absence for a period of 45 days or more [8]. Demographic and socioeconomic details including age, gender, family type, siblings, parental education, occupation, and socioeconomic status (modified Kuppuswamy scale) [9] were recorded using a structured proforma.

Social competence was assessed using the Vineland Social Maturity Scale [2] through caregiver interviews which is a 89-item interview questionnaire. The Vineland Social Maturity Scale (VSMS) evaluates social competence and adaptive behavior from birth to age 15. Scoring involves calculating a Raw Score based on items passed, converting this to a Social Age (SA) using standard norm tables, and computing the Social Quotient (SQ). The assessment consists of 89 to 117 items arranged in increasing order of difficulty across 8 domains (e.g., Self-Help, Communication, Locomotion, and Socialization). The basal age is established when all items in a specific age group are passed. All passed items beyond the basal age are added as additional points. Total Score (Raw Score) - The sum of all passed items (typically scored as 1 for pass, 0.5 for partial/half credit, and 0 for fail). Raw scores were converted to Social Age, and Social Quotient (SQ) was calculated using:

$$SQ = \frac{\text{Social Age}}{\text{Chronological Age}} \times 100$$

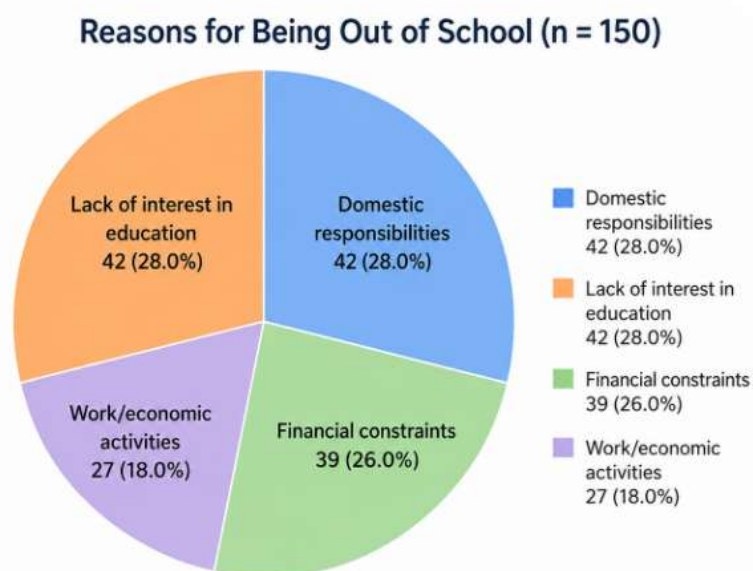
Data were analysed using IBM SPSS- 25 version Statistics. Continuous variables were expressed as mean  $\pm$  standard deviation or median with interquartile range. Independent t-test or Mann–Whitney U test was used for continuous variables, while chi-square or Fisher’s exact test was applied for categorical variables. A p value <0.05 was considered statistically significant.

## RESULTS

A total of 300 children were enrolled in the study, comprising 150 school-going and 150 out-of-school children. The two groups were comparable with respect to age, gender, and family type ( $p > 0.05$ ). Overall, 57.3% of the participants were males and 59.0% belonged to nuclear families. Out-of-school children had a significantly higher mean number of siblings ( $1.33 \pm 0.88$  vs.  $1.10 \pm 0.90$ ;  $p = 0.024$ ) and were more likely to reside in rural areas (56.0% vs. 49.3%;  $p = 0.034$ ). Among school-going children, 46.0% attended government schools, 40.0% private unaided schools, and 14.0% private aided schools. Among out-of-school children, the mean duration of school absence was  $120.22 \pm 74.85$  days (range: 45–365 days) (Table 1). The most common reasons for being out of school were domestic responsibilities and lack of interest in education (28.0% each), followed by financial constraints (26.0%) and engagement in work or economic activities (18.0%) (Figure 1).

**Table 1: Demographic and Schooling Characteristics of the Study Population**

| Variable                                                    | School-going<br>(n=150) | Out-of-school<br>(n=150) | p-value |
|-------------------------------------------------------------|-------------------------|--------------------------|---------|
| Age (years), mean $\pm$ SD                                  | 8.95 $\pm$ 2.39         | 9.47 $\pm$ 2.34          | 0.061   |
| Gender, n (%)                                               |                         |                          | 0.815   |
| Male                                                        | 87 (58.0)               | 85 (56.7)                |         |
| Female                                                      | 63 (42.0)               | 65 (43.3)                |         |
| Family type, n (%)                                          |                         |                          | 0.557   |
| Nuclear                                                     | 86 (57.3)               | 91 (60.7)                |         |
| Joint                                                       | 64 (42.7)               | 59 (39.3)                |         |
| Number of siblings, mean $\pm$ SD                           | 1.10 $\pm$ 0.90         | 1.33 $\pm$ 0.88          | 0.024*  |
| Residence, n (%)                                            |                         |                          | 0.034*  |
| Urban                                                       | 76 (50.7)               | 66 (44.0)                |         |
| Rural                                                       | 74 (49.3)               | 84 (56.0)                |         |
| Type of school among school-going children (n=150), n (%)   |                         |                          |         |
| Government                                                  | 69 (46.0)               | —                        |         |
| Private aided                                               | 21 (14.0)               | —                        |         |
| Private unaided                                             | 60 (40.0)               | —                        |         |
| Duration out of school among out-of-school children (n=150) | —                       |                          |         |
| Mean days out of school $\pm$ SD                            | —                       | 120.22 $\pm$ 74.85       |         |
| Range (days)                                                | —                       | 45–365                   |         |
| Reasons for being out of school (n=150), n (%)              | —                       |                          |         |
| Domestic responsibilities                                   | —                       | 42 (28.0)                |         |
| Lack of interest in education                               | —                       | 42 (28.0)                |         |
| Financial constraints                                       | —                       | 39 (26.0)                |         |
| Work/economic activities                                    | —                       | 27 (18.0)                |         |



**Figure1:** Distribution of reasons for being out of school among out-of-school children (n = 150). Domestic responsibilities and lack of interest in education were the most common reasons (28.0% each), followed by financial constraints (26.0%) and engagement in work/economic activities (18.0%).

**Table 2** shows that out-of-school children demonstrated higher social age and Social Quotient (SQ) than school-going children (105.18  $\pm$  3.35 vs 96.30  $\pm$  4.96;  $p < 0.001$ ). This difference was consistent across age groups, gender,

and socioeconomic strata. However, no significant overall difference in SQ was observed between males and females ( $p = 0.610$ ).

**Table 2: Social Quotient (VSMS) outcomes according to schooling status and subgroup analyses**

| Variable                               | School-going (n=150) Mean $\pm$ SD | Out-of-school (n=150) Mean $\pm$ SD | p-value |
|----------------------------------------|------------------------------------|-------------------------------------|---------|
| Social Age (years)                     | 8.65 $\pm$ 2.41                    | 9.92 $\pm$ 2.32                     | —       |
| Chronological Age (years)              | 8.95 $\pm$ 2.39                    | 9.47 $\pm$ 2.34                     | —       |
| Social Quotient (SQ)                   | 96.30 $\pm$ 4.96                   | 105.18 $\pm$ 3.35                   | <0.001* |
| SQ by Gender                           |                                    |                                     |         |
| Female                                 | 96.34 $\pm$ 4.44                   | 104.59 $\pm$ 3.78                   | <0.001* |
| Male                                   | 96.27 $\pm$ 5.16                   | 105.65 $\pm$ 2.98                   | <0.001* |
| SQ by Age group (years)                |                                    |                                     |         |
| 6–7                                    | 94.86 $\pm$ 6.14                   | 107.22 $\pm$ 3.79                   | <0.001* |
| >7–9                                   | 96.53 $\pm$ 4.72                   | 105.76 $\pm$ 3.01                   | <0.001* |
| >9–11                                  | 98.44 $\pm$ 4.30                   | 104.92 $\pm$ 2.73                   | <0.001* |
| >11–14                                 | 96.35 $\pm$ 2.14                   | 102.63 $\pm$ 2.07                   | <0.001* |
| SQ by Socioeconomic status (SES 10–15) | Lower in SG across categories      | Higher in OOS across categories     | <0.001* |

## DISCUSSION

This study evaluated Social Quotient (SQ) among school-going and out-of-school children attending a tertiary care hospital using the Vineland Social Maturity Scale (VSMS). The findings showed that out-of-school children had significantly higher SQ scores than school-going children. Mean SQ among out-of-school children was 105.18  $\pm$  3.35 compared with 96.30  $\pm$  4.96 among school-going children, indicating greater social maturity and adaptive functioning in the former group. This trend remained consistent across different age groups, genders, and socioeconomic categories.

Out-of-school children also demonstrated higher social age relative to chronological age, suggesting better adaptive functioning in domains assessed by the VSMS, including communication, self-help skills, socialization, and self-direction. Since chronological age was comparable between the two groups, the observed differences were unlikely to be explained by age variation alone. The Vineland Social Maturity Scale remains one of the most widely used tools for assessing adaptive behaviour and social competence in children [2].

Demographic analysis showed that out-of-school children were more likely to reside in rural areas and had a higher mean number of siblings than school-going children. Despite these challenges, they demonstrated higher social maturity scores. Gender did not significantly influence overall SQ, as mean scores were similar among males and females. Overall, the findings suggest that schooling status is strongly associated with differences in adaptive social functioning within this population.

Social competence develops through continuous interaction with family members, peers, and the broader social environment. Previous research has emphasized that opportunities for social participation and interaction play a crucial role in the development of adaptive behaviour and social functioning [10]. The higher SQ observed among out-of-school children in the present study suggests that meaningful social learning may occur through experiences outside formal educational settings.

Similarly, Jacob et al. reported significant differences in social age and social quotient among children with and without disabilities, highlighting the importance of environmental context and social opportunities in shaping adaptive functioning [11]. The present findings extend this observation by suggesting that schooling status itself may act as an important determinant of social competence.

Tandon et al., while studying low-birth-weight survivors, reported variations in social maturity and functional outcomes that were influenced by developmental experiences and environmental circumstances [12]. These observations support the concept that adaptive social functioning is shaped by cumulative life experiences rather than by educational exposure alone.

Social competence is influenced by multiple environmental determinants that extend beyond the classroom. Mendez et al. demonstrated that social competence profiles among children from economically disadvantaged backgrounds were strongly associated with environmental and family characteristics, emphasizing the importance of contextual experiences in shaping adaptive behaviour [13].

Meilstrup et al. reported that social competence and self-efficacy can reduce the adverse psychosocial effects of socioeconomic disadvantage among school children [14]. This observation may partly explain why out-of-school children in the present study maintained relatively high Social Quotient scores despite belonging predominantly to lower socioeconomic strata.

Xu et al. found that family socioeconomic status influences children's social-emotional development through its effect on the quality of the home-rearing environment [15]. The higher Social Quotient observed among out-of-school children may therefore reflect differences in family interactions and early social experiences that are not fully captured by conventional socioeconomic indicators.

Barbarin et al. demonstrated that family resources, neighbourhood quality, and home environment significantly contribute to childhood competence and developmental outcomes [16]. These findings support the view that adaptive social functioning is shaped by multiple contextual influences beyond formal educational participation. Coleman reported that stronger parent-child attachment and greater social self-efficacy were associated with improved peer relationships and social competence during middle childhood [17]. Children in the present study who assumed household responsibilities and participated actively in family life may have acquired adaptive social skills through similar interpersonal mechanisms.

Kasari et al. showed that structured opportunities for social interaction improve adaptive functioning and social competence in children with developmental challenges [18]. Although their population differed from the present study, the findings reinforce the broader principle that social competence develops through active participation in meaningful social experiences.

Howes and Matheson demonstrated that peer interaction and social pretend play contribute significantly to the development of competent social behaviour during childhood [19]. While school settings provide structured opportunities for such interactions, children outside formal education may acquire comparable competencies through participation in community and family activities.

Wentzel found that socially competent children tend to demonstrate better academic adjustment and interpersonal functioning within school environment [20]. The present findings suggest that adaptive social competence may also develop outside formal educational settings, highlighting the multifaceted nature of social development.

Newcomb et al., in a meta-analysis of children's peer relations, reported strong associations between peer acceptance and social competence [21]. Frequent interaction with siblings, relatives, and community members among out-of-school children may contribute to the development of similar adaptive interpersonal skills.

Gubbels et al. identified socioeconomic disadvantage, family adversity, and environmental factors as major contributors to school absenteeism and educational disengagement [22]. The predominance of lower socioeconomic categories among out-of-school children in the present study is consistent with these observations and highlights the complex relationship between educational participation and social development. Zhang et al. demonstrated that out-of-school status is frequently associated with socioeconomic vulnerability and household disadvantage [23]. Despite these challenges, the out-of-school children in the present study demonstrated higher Social Quotient scores, suggesting that adaptive social competence may be influenced by factors beyond conventional indicators of socioeconomic status.

Several explanations may account for the higher SQ observed among out-of-school children in the present study. Children outside formal education often assume practical responsibilities earlier in life, such as household work, caring for younger siblings, or contributing to family occupations. These experiences may promote independence, responsibility, and problem-solving abilities, thereby enhancing adaptive functioning [7].

In addition, out-of-school children may interact more frequently with adults and community members in real-life social situations that require adaptability and negotiation skills. Although schools provide structured opportunities for peer interaction and guided learning, informal social environments may foster practical competencies related to self-direction and day-to-day functioning. The importance of social relationships and interaction opportunities in the development of social competence has been highlighted in educational research [3].

The absence of significant gender differences in SQ is another important finding. Denham suggest that environmental influences may have a greater impact on adaptive behaviour than gender alone [24]. The study provides insight into the association between educational status and adaptive social functioning among children and highlights the need for further community-based longitudinal research to better understand the factors influencing social development in both school-going and out-of-school populations.

Out-of-school children demonstrated significantly higher Social Quotient scores than school-going children despite having comparable demographic characteristics. These findings suggest that social competence is influenced not only by formal education but also by the nature and extent of everyday social experiences and responsibilities. Understanding these influences may help guide interventions aimed at promoting optimal social development among all children.

### **Strengths**

This study has several methodological strengths. Social competence was assessed using the Vineland Social Maturity Scale, a widely validated and internationally recognised instrument for measuring adaptive behaviour in children. The inclusion of demographic and socioeconomic variables enabled a more comprehensive examination of contextual factors influencing social development.

### **Limitations**

Despite these strengths, certain limitations should be acknowledged. The study was conducted in a hospital-based population, which may limit the generalisability of the findings to community settings. Children presenting to healthcare facilities may differ from the general population in terms of health status or socioeconomic background. In addition, the cross-sectional design prevents conclusions regarding causal relationships between schooling status and social competence.

## **CONCLUSION**

The present study demonstrates that out-of-school children attending a tertiary care hospital showed significantly higher Social Quotient scores than school-going children across multiple demographic strata. These findings underscore the importance of considering environmental experiences and contextual factors when evaluating social competence in children.

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**Conflicts of Interest:** NIL

**Clinical trial number:** not applicable

**Human Ethics and Consent to Participate declarations** - Attached

**Data availability:** The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request. The data are not publicly available because they contain information that could compromise participant confidentiality.

**Consent to publish:** YES

## **REFERENCES**

1. Berk LE. Development through the lifespan. 7th ed. Boston: Pearson; 2018.
2. Doll EA. Vineland Social Maturity Scale. Minneapolis: Educational Test Bureau; 1965.
3. Wentzel KR. Social competence at school: Relation between social responsibility and academic achievement. *Rev Educ Res.* 1991;61(1):1-24.
4. UNESCO. Global Education Monitoring Report 2020. Paris: UNESCO; 2020.
5. UNICEF. The State of the World's Children 2019. New York: UNICEF; 2019.
6. Shaw SR, McCabe PC. Hospital-to-school transition for children with chronic illness: Meeting the new challenges of an evolving health care system. *J Sch Health.* 2008;78(2):74-87.
7. Bornstein MH, Bradley RH, editors. Socioeconomic status, parenting, and child development. Mahwah (NJ): Lawrence Erlbaum Associates; 2003.
8. Government of India, Ministry of Education. Guidelines for Special Training and Definition of Out-of-School Children (OoSC) [Internet]. New Delhi: Government of India; [cited 2024 Feb 24]. Available from: [https://www.education.gov.in/sites/upload\\_files/mhrd/files/upload\\_document/OoSC.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/upload_document/OoSC.pdf)
9. Mandal I, Hossain SR. Update of modified Kuppuswamy scale for the year 2024. *Int J Community Med Public Health.* 2024;11:2945-6.
10. Ladd GW. Peer relationships and social competence during early and middle childhood. *Annu Rev Psychol.* 2005;56:333-59.
11. Jacob AM, Kumar SG, Kulkarni MM. Correlation of social ages and BMI centiles among children aged 5-15 years with and without disability from a rural community in Karnataka, India. *Global Health Epidemiol Genom.* 2025.
12. Tandon A, Kumar R, Mishra PK, Singh GK. Intellectual, psychoeducational and functional status of low birth weight survivors beyond 5 years of age. *Indian Pediatr.* 2000;37(3):291-300.

13. Mendez JL, Fantuzzo JW, Cicchetti D. Profiles of social competence among low-income African American preschool children. *Child Dev.* 2002;73(4):1085-100. doi:10.1111/1467-8624.00459.
14. Meilstrup C, Holstein BE, Nielsen L, Due P, Koushede V. Self-efficacy and social competence reduce socioeconomic inequality in emotional symptoms among schoolchildren. *Eur J Public Health.* 2019;29(Suppl 4).
15. Xu Y, Meng Y, Dong X, Wang S, Yu L. Relationship between family socioeconomic status and toddlers' social-emotional development: The mediation effects of home rearing environment. *Front Psychol.* 2024;15.
16. Barbarin OA, Bryant D, McCandies T, Burchinal M, Early DM, Clifford RM, et al. Children enrolled in public pre-K: The relation of family life, neighbourhood quality, and socioeconomic resources to early competence. *Am J Orthopsychiatry.* 2006;76(2):265-76. doi:10.1037/0002-9432.76.2.265
17. Coleman PK. Perceptions of parent-child attachment, social self-efficacy, and peer relationships in middle childhood. *Infant Child Dev.* 2003;12(4):351-68. doi:10.1002/icd.316.
18. Kasari C, Rotheram-Fuller E, Locke J, Gulsrud AC. Making the connection: Randomized controlled trial of social skills at school for children with autism spectrum disorders. *J Child Psychol Psychiatry.* 2012;53(4):431-9. doi:10.1111/j.1469-7610.2011.02493.x.
19. Howes C, Matheson C. Sequences in the development of competent play with peers: Social and social pretend play. *Dev Psychol.* 1992;28(5):961-74. doi:10.1037/0012-1649.28.5.961.
20. Wentzel KR. Does being good make the grade? Social behavior and academic competence in middle school. *J Educ Psychol.* 1993;85(2):357-64. doi:10.1037/0022-0663.85.2.357.
21. Newcomb AF, Bukowski WM, Pattee L. Children's peer relations: A meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychol Bull.* 1993;113(1):99-128. doi:10.1037/0033-2909.113.1.99.
22. Gubbels J, van der Put CE, Assink M. Risk factors for school absenteeism and dropout: A meta-analytic review. *J Youth Adolesc.* 2019;48(9):1637-67. doi:10.1007/s10964-019-01072-5.
23. Zhang H, Akram S, Hassan MU, Shahzad MF. A multilevel analysis of out-of-school children by gender and educational level. *Child Soc.* 2024;39(2):554-67. doi: 10.1111/chso.12848
24. Denham SA, Bassett HH. Socialization of emotional competence. *Dev Psychol.* 2007;43:329-40. doi:10.1037/0012-1649.43.2.329.