Original Research Article

A cross-sectional study of impact of school environment on students' health

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ABSTRACT

Background: A child's growth and personality depends not only on his intelligence but also emotional health which incorporates his family, peer, school and teachers. This study aimed to evaluate quality of life in school (QoLS) among school children aged 13-16 years and to explore their school environment.

Methods: In this community-based study, 293 school children were randomly selected from an urban community and were subjected to face-to-face interviews to obtain: socio demographic features inclusive of age, gender and details of school; and QoLS instrument exploring psychosocial factors, attitude towards school, teacher-student relationship and school environment.

Results: Males had 57.68% representation. Majority belonged to private schools (71.6%) and state board (92.83%). Majority confirmed for adequate lighting (97.27%), clean school (91.47%), and extra-curricular activities (85.32%). Few faced problems like teasing (19.79%), feeling unsafe (16.38%), and loneliness (13.99%). Majority were satisfied with teachers (92.15%) and found them supportive (96.58%) and approachable (91.47%). The lowest and highest QoLS scores were reported for psychosocial factors (3.335±0.991) and teacher-student relationship (3.645±0.773) respectively. Girls reported significantly higher scores for school environment. Residential and 8th grade students gave significantly higher scores for total QoLS and all domains. QoLS was not affected by the school being government or private and education board being state or CBSE.

Conclusions: Teacher-students relationship and psychosocial factors were scored highest and lowest respectively in QoLS. Girls, younger age and residential students had higher perception of QoLS. To achieve transformative growth and healthy adulthood, both family and school should focus on safe, stimulating and supportive environment for the child depending on age and gender-specific needs.

Keywords: Quality of life in school, Health promoting school, Teacher-student relationship, School environment,

INTRODUCTION

Growth and development in child to attain adult characteristics occur in an incremental and predictable sequence. Family, peer, teachers and school constitute interdependent spheres of repercussion in child's life.[1] Inception of social interaction and acquisition of cognitive and communicative skills transpire in family. Schools further add momentum by engaging and empowering child in voluntary education-driven behavioral changes to procure and endure health gains.[2]

A healthy school with secure and stimulating milieu is instrumental in fruitful educational process with its long term psychosocial, emotional, cognitive and ethical effects. Children's quality of life in school (QoLS) is a multidimensional concept, portraying their subjective perception of well-being and happiness.[3] The health promoting school concept epitomizes holistic learning and

development as the central ideology.[4] This organizational cognition assembles child's participation and empowerment, teacher-student association, parental engagement and school silhouette in terms of architectural designs, school ethos and curriculum, classroom aesthetics.[5,6] Periodic transvaluation of school environment and health promotion interventions shall help to extrapolate the determinants of health and QoLS.[2,7]

A child may portray multiple roles in school as a student, partner, friend, etc. Strife between academic interests and social relationships in additional to obligations from home and school might challenge his age- and gender-perceptivity.[8] Negative school experience may cause reduced self-esteem, emotional burnout, educational delinquency, and disengagement in various extra-curricular activities like sports or cultural programs. Thus, that affected child may succumb to cumulative consequences like health issues, instability in career, behavior and relationships and substance abuse which can be transferred to some extent to next generation.[9]

As the child is the future of the nation, ensuring egalitarian opportunities and resource utilization is integral for achieving fullest health and intellectual potential. Also, it is imperative to provide him/her with school environment which is intuitive, individualized and instigating to catalyze knowledge acquisition and adroitness.[1,7] Early exposure to health education in schools is a justified investment to develop deep-rooted abiding core values for healthy adulthood.[7]

As education and school environment play equivocal roles in overall child scholastic and personality development, the study aimed to evaluate QoLS and its determinants in the school children aged 13-16 years.

METHODS

It was a community-based cross-sectional study conducted over a period of two months among school children from 5th April 2019 to 4th June 2019. The study was initiated after the approval of the institutional ethical committee. The children were selected through random sampling for the survey from an urban community in city of Visakhapatnam. The participation was voluntary and no incentives or rewards were given. The participation was subjected to informed written consent under the guidance of the parent/guardian, ensuring them confidentiality.

The inclusion criteria were: age ≥13 years and ≤16 years; and regular attendance in school. The exclusion criteria were: school drop outs; involved in child labor; engaged in any occupation; and history of any psychological disorders or chronic diseases.

As per standardized procedures, the following information was obtained from the participants with face to face interviews: socio demographic features and QoLS instrument.

Research tool: QoLS instrument

It is a subjective measure of quality of life of a student with 36 items covering 4 domains: psychosocial environment (12 items); attitude towards school (7 items); teacher-student relationship (6 items); and school environment (11 items).[10] Each item was scored on a 4-point Likert scale [from "never true=1" to "always true=4"] with negative items having reverse scoring. Sum of all scores yielded a total QoLS score, higher scores indicating better QoLS. A mean score (range 1-4) was calculated for each domain of QoLS and for the total QoLS score.

QoLS had excellent psychometric properties with good internal consistency having Cronbach's value for each domain: psychosocial factors–0.83; attitude towards school–0.85; teacher-student relationship–0.85; and school environment–0.79 and all 4 domains having strong correlation with each other.[11] Thus, it is a valid reliable tool for evaluation of QoLS in children.[12]

The socio-demographic features included age, gender, school funding (government or private), type of school (residential or non-residential), and board of school education (state or central).

Initial screening of children determined their participation. Children fulfilling the inclusion criteria were recruited for the study. The questionnaires were self-administered to children. The child took around 20 minutes to complete the questionnaire. Any doubts, if present, were assisted by the investigator.

Calculation of sample size

Based on the previous study by Ghotra et al, the standard deviation of the total QoLS was 0.43 and the alpha error of 5%.[12] With the estimated error of 5%, the minimum sample size was calculated as per the formula.

$$n \geq \left[\frac{Z_{1-\alpha/2}\sigma}{d} \right]^2$$

Where 'n' is the size of sample, 'σ' is the estimated standard deviation and 'd' is the estimation error. After substituting the values, d=0.05, σ=0.43, in the above formula, the minimum sample size required for the study was 285.

Data analysis

The data collected was organized with the help of Microsoft excel and statistical package for social sciences (SPSS) version-22. Descriptive analyses were computed as frequency (N), percentage (%), mean, and standard deviation (SD). Depending on the nature of distribution of data, independent 't' tests and one-way analysis of variance (ANOVA) were applied to estimate the differences in the mean scores of QoLS in different

domains with respect to socio-demographic variables of the participants. The significance level was set at p value <0.05 for all analyses.

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Ethical approval

The study was approved by the Institutional Ethical Committee. Rc No: IEC / UG1 / 26042019 / 1 dated 26 April 2019.

RESULTS

For the present study, 293 students of age group 13-16 years were recruited after initial screening for participation. Males constituted 57.68% (n=169) (Table 1). Majority of children were going to private schools [n=210 (71.67%)] and belonged to state board [n=272 (92.83%)].

As per QoLS questionnaire (Table 2), majority of responses were in favor for the psychosocial factors. But few students reported teasing [n=58 (19.79%)], feeling unsafe [n=48 (16.38%)], feeling loneliness [n=41 (13.99%)]. Majority gave positive responses for attitude towards school but 8.19% (n=23) students felt attending

school is not important. Satisfaction was observed in many school children for teacher-student relationship and school environment. The total QoLS score was 3.5±0.889 (Table 3). The lowest score (3.335±0.991) was reported for psychosocial factors. The teacher-student relationship was scored the maximum (3.645±0.773).

Table 1: Socio-demographic features of school students and types of schools (n=293).

Variable	N (%)
Gender	
Male	169 (57.68)
Female	124 (42.32)
Funded by	
Government	83 (28.33)
Private	210 (71.67)
Type of school	
Residential	140 (47.78)
Non-residential	153 (52.21)
Board of school education	
State	272 (92.83)
CBSE	21(7.17)
Grade	
8th	51(17.40)
9th	28 (9.56)
10th	214 (73.04)

CBSE: Central Board of Secondary Education

Table 2: Responses to the items on the QoLS scale (n=293).

Sl. no.	Question	1	2	3	4
F1—Psychosocial factors					
1	You feel lonely in school	167	85	29	12
2	You are getting teased by other students	154	81	27	31
3	You have many friends at school	36	15	31	211
4	You suffer from sleeping problems at night	160	96	26	11
5	You feel unpopular in class	197	53	22	21
6	You are getting respect from other students	35	26	62	170
7	You feel frustrated in the school	124	105	41	23
8	You are jealous of other students' things	187	66	23	17
9	You feel safe at school	38	10	22	223
10	You want to change your school	234	19	6	25
11	You feel popular in class	88	34	27	144
12	You experience pain or discomfort during school hours	185	67	29	12
F2—Attitude towards school					
13	You are interested in the school subjects	17	8	26	242
14	You enjoy being in the school	16	13	25	239
15	You are satisfied with the school life	22	13	39	219
16	You feel happy during school hours	16	16	53	208
17	You feel attending school is important	15	9	21	248
18	You are satisfied with your grades in exam	26	62	88	117
19	You are happy with your academic success	25	54	86	155
F3—Teacher–student relationship					
20	Your teacher support student's interest and well-being all the time	17	18	47	211
21	You are fond of your teacher very much	15	7	64	249
22	You understand your teacher's classes very well	10	5	41	237

Sl. no.	Question	1	2	3	4
23	Your teachers are approachable for any doubts or help	10	15	48	220
24	Your teacher supports you for your academic success	4	6	21	262
25	You are satisfied with your teacher	12	11	30	240
F4—School environment					
26	The classroom is quiet enough for learning	31	34	59	169
27	The appearance of the school is positive for learning	9	9	39	236
28	The appearance of the classroom is positive for learning	7	13	41	232
29	The school environment is maintained adequately clean throughout school hours	8	17	64	204
30	The chair and desks in the classrooms are comfortable for sitting	13	21	40	219
31	School is a fun place to play	39	22	38	194
32	Classroom temperature is maintained within comfort zone for learning	18	17	65	183
33	The whiteboard/green board is visible properly even if you sit in the last row	15	20	31	227
34	The school is continuously engaging students in many cultural activities and sports	19	24	38	212
35	The classroom has adequate lighting during lecture hours	2	6	25	260
36	Traveling to school is comfortable	6	8	29	250

1-Never true, 2-usually not true, 3-usually true, 4-always true

Table 3: Characteristics of the QoLS scale in the school children (n=293).

Variable	Mean	SD
Total QoLS	3.50	0.889
Psychosocial factors	3.335	0.991
Attitude towards school	3.497	0.886
Teacher student relationship	3.645	0.773
School environment	3.613	0.789

Table 4: Comparison of total score and scores of various domains of QoLS questionnaire with respect to socio-demographic variables and type of schools (n=293).

Variable	N (%)	Total QoLS	Psychosocial factors	Attitude towards school	Teacher student relationship	School environment
Gender						
Girls	124 (42.32)	3.539±0.845	3.342±0.554	3.505±0.438	3.688±0.42	3.714±0.651
Boys	169 (57.68)	3.471±0.782	3.330±0.824	3.491±0.721	3.614±0.58	3.539±0.358
P value**		0.4779	0.8884	0.8481	0.6974	0.0035*
Grade						
8th	51 (17.40)	3.745±0.623	3.619±0.548	3.719±0.625	3.849±0.639	3.845±0.405
9th	28 (9.56)	3.573±0.426	3.372±0.791	3.53±0.830	3.708±0.480	3.767±0.746
10th	214 (73.04)	3.432±0.781	3.262±0.956	3.440±0.726	3.588±0.730	3.535±0.861
P value#		0.020	0.035	0.046	0.050	0.024
Type of school						
Residential	140 (47.78)	3.655±0.641	3.452±0.584	3.642±0.502	3.815±0.716	3.813±0.421
Non residential	153 (52.21)	3.358±0.862	3.228±0.952	3.363±0.62	3.490±0.851	3.430±0.746
P value**		<0.0001*	0.017*	<0.0001*	0.0005*	<0.0001*
Funded by						
Private	210 (71.67)	3.520±0.635	3.379±0.75	3.499±0.628	3.648±0.592	3.629±0.538
Government	83 (28.33)	3.449±0.726	3.223±0.821	3.490±0.692	3.638±0.520	3.573±0.619
P value**		0.4087	0.1196	0.9146	0.8929	0.4428
Board of school education						
State	272 (92.83)	3.510±0.536	3.337±0.642	3.509±0.654	3.654±0.342	3.633±0.459
CBSE	21(7.17)	3.362±0.832	3.305±0.979	3.333±0.876	3.513±0.793	3.352±0.725
P value**		0.1613	0.833	0.2482	0.1116	0.0105*

QoLS - Quality of life in school, CBSE - Central Board of Secondary Education, *p<0.05 - statistically significant, **p value estimated by independent 't' test, #p value estimated by one-way ANOVA

Girls reported statistically significant higher scores for school environment as compared to boys (Table 4). The scores reported by 8th grade students were higher than those of 9th and 10th standard students in total as well as each domain and were statistically significant. Residential school students reported statistically significant higher scores for total QoLS and all domains as compared to non-residential schools. The state board students reported statistically significant higher score for school environment as compared to students of CBSE board. Students studying in private schools reported higher scores than those studying in government schools, although the differences were not statistically significant.

DISCUSSION

Education facilitates the developmental transition of culture, behavior and attitude to alchemize child into a functional adult with good moral character. The study aimed to explore school environment and quality of life of school-going children.

In the present study, though higher values for the components as well as the total score for school QOL were reported by girls, only the score for the school environment was significantly higher among girls as compared to boys. The findings are consistent with the studies done by Ghotra et al in Canadian elementary school children using the same tool.[12] Also, Liu et al and Erez et al had observed that girls were more content with their school as compared to boys thus indicating gender as an important perspective while addressing developmental needs of the students.[8,13]

In the present study, the students of higher grades had significantly lower scores for all components as compared to lower grade students. Erez et al and Guhn et al in their studies highlighted similar observations of lower perception of QoLS in older students than younger ones.[13,14] This could be attributed to enhanced perception of obligation, competition, stricter appraisals and exaggerated emphasis on performance.[7] The present study also highlighted that QoLS was not affected by the school being government or private and education board being state or CBSE. Malin et al referred 'school QOL' to 'students' satisfaction and general well-being accounting both the positive and negative experiences acquired from school and involvement in its activities.[15] This also supports their developmental transitions, and preferences to certain norms owing to implicit and explicit school practices.

In the present study, teacher-student relationship was scored highest among all domains. Majority of the students were satisfied with their teachers and found them very supportive for their studies and approachable for any doubts. Teacher-student relationship fortified with discipline, sense of justice and non-judgmental attitude is favorable for students who deal not only with academic pressure but also code of conduct and behavioral transition. A good teacher is instrumental for enhancement of prosocial behavior among students by promoting coherence between classmates, buffering stress and conflicts between them, disincentivizing belligerent actions and instilling a sense of security.[16] This behavioral regularization shall also downscale the incidences of teasing, bullying and isolation which are detrimental both for classroom ambience as well as child's psychosocial well-being.[17]

In the present study, school environment was the second highest scored domain. More than 90 percent students were affirmative of school's physical and aesthetic environment like natural surroundings, cleanliness, ventilation classroom acoustics and furniture which often captivate their attendance, learning and contentment.[5,6] Also, almost 85% students were involved in extra-curricular activities like cultural programs or sports. A longitudinal intervention study had highlighted that physical activity has proclivity towards enhanced quality of life in school children.[18]

In the present study, around 8% of students had least interest in attending schools which can contribute to substantial rate of absenteeism and if neglected, can result in school dropouts, affiliation with negative peers and inclination towards risky-behaviors[19]. School is weighed to be the second institution after home in fostering child's individualism. The motivation to continue in the same school is harnessed by the school environment, cognitive and creative support experienced by the child. The high-risk students should be identified and their psychological and behavioral maladjustments needs to be addressed.

Residential school children reported statistically significant higher scores for all the components and the total score for QOL as compared to children who were studying in non-residential schools. As residential students stay away from home, they are subjected to same living standards and regimented life irrespective of their economic status and ownership. They often have peer coherence, adaptive motivation, self-reliability and lower absenteeism.[2] However, few students may exhibit adjustment issues, procrastination, dissociation or encapsulated emotional self which can impede their scholastic achievements as well as long term development.[9] Thus, school can be both the resource and risk for health and behavior of the students. Here parental involvement is integral in discovering his merits and demerits and domains that need refinement.[2] Karatzias et al had reported significant association of student's perceived QOL with attitude towards school, teacher-student relationship and school environment.[20]

The present study revealed lowest score for psychosocial domain in QoLS. Majority students were affirmative about their friendship, respect and popularity from other classmates which often boosts positive experiences and adaptation within school. However, almost 15% students experienced teasing, feeling unsafe, loneliness could augment the risk of depression and subsyndromal

psychological issues.[17] National mental health survey (NMHS) which had completed two-stage screening among adolescents aged 13-17 years, reported prevalence of 7% of depressive disorders with point prevalence of 2.6%.[21] Those sensitive students may grow querulous and obstinate and can get victimized for substance abuse, violent behavior and criminal activities. Hence it is of prime importance to provide supportive as well as individualized care to the needy child to preserve his mental health and resilience.

Adolescence is a stage of fundamental transformation in pursuit of positive health and prosocial behavior. Articulation between parents, students and teachers forms the cornerstone for health promoting school concept to foster social-emotional learning and positive adaptation in challenging situations.[2,7] Regular methodologically epidemiological evaluations of schools and children would provide better insight to identify the sources of discrimination and review the existing policies. Configuration of student-centered, equitable and sustainable interventions, leveraged with political commitment and good governance, is imperative to achieve compulsory education and health promotion for all children.[22] Children with supportive family and peer group, facilitative teacher-student relationship and good school ambience with favorable learning opportunities and essential element of good teaching are at exponential benefit in terms of better educational outcomes, total personality development and good health.[2,6,7]

The findings of the present study need to be interpreted in context of few limitations. Derivation of results from self-reported data has a potential of recall bias. The study did not take into consideration few factors like socio-economic status of the family, educational status of parents, neighborhood profile, societal and cultural factors and accessibility to health care which can have strong influence on QoLS perception. It also did not include students with known disabilities and social-economic inequalities like child labor, school drop-outs etc., which is a definite concern to be addressed. Larger cohort and multi-design prospective studies would offer a more differential picture to extrapolate results to whole population. Despite of its cross-sectional nature, this study represents an attempt to shed light on the quality of life in school children and their perception of school environment.

CONCLUSION

Girls, younger students and students of residential schools reported higher scores for domains and total scores of QoLS, indicating more satisfaction and positive attitude for school. Teacher-students relationship and psychosocial factors were scored highest and lowest respectively. As education and health go hand in hand, it is crucial to advocate gender and age-specific developmental needs of students to achieve educated and engaged citizens with good health and resilience for better future. Healthier the school, better shall be the students, more progressive the nation shall be.

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