STUDENTS' PERCEPTION OF SCHOOL ENVIRONMENT AND LIFE SATISFACTION AT SINHALA-MEDIUM SECONDARY SCHOOLS IN THE COLOMBO DISTRICT, SRI LANKA

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Abstract. The objective of this study was to examine the associations between students' perception of physical and psychosocial school environment and satisfaction with life among secondary school students in Colombo District, Sri Lanka. Data were collected from 20 Sinhala-medium secondary schools between January and February in 2010. A questionnaire-based survey was conducted with students in grade seven (n=342) and grade ten (n=446). Multivariate logistic regression analysis, adjusted for confounding variables, was used to assess the associations between students' satisfaction with life measured by Cantril ladders, and scores of perceived physical and psychosocial school environment that focused on school cleanliness and attractiveness, relations with teachers and peers, satisfaction with school and bullying. Students in the highest quartile of school environment score were significantly more likely to have high life satisfaction, compared to those in the lowest quartile (adjusted odds ratio 2.32; 95% confidence interval 1.35-3.99). Odds ratio of high life satisfaction increased with increasing school environment scores (p for trend<0.001). In conclusion, students who perceived positive school environment were significantly more likely to have high life satisfaction. Positive changes in the focused areas of school environment have the potential to lead to improved life satisfaction of students.

Keywords: life satisfaction, wellbeing, school environment, perception, Sri Lanka

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INTRODUCTION

Children's wellbeing is important in its own right (United Nations, 1989), but also because it can affect their physical health and determines how well they do at school (Zulling *et al*, 2005). The im-

portance of child wellbeing has been increasingly recognized in many countries. Health Behavior in School-aged Children (HBSC), which is a cross-national research study, was initiated in England, Finland and Norway in 1982, and later the World Health Organization (WHO) adopted the project as a WHO collaborative study (WHO/EURO, 2008). There are now 43 participating countries, most of which are European countries.

Life satisfaction refers to personal assessment of one's condition, compared with an external reference standard or to one's own aspiration (WHO, 2004). Life satisfaction is an important aspect of wellbeing and widely used to measure subjective wellbeing of children and adolescents (Huebner, 2004).

Studies have suggested that students' satisfaction with life could be associated with a variety of variables: socio-economic status measured by family affluence (Ravens-Sieberer *et al*, 2009), relationships with parents (Wong *et al*, 2010), age and gender (Goldbeck *et al*,2007), and lifestyle (Lindberg and Swanberg, 2006; Iannotti *et al*, 2009; Li *et al*, 2010). A number of studies report that social support from teachers is a strong predictor of students' life satisfaction (Natvig *et al*, 2003; Lindberg and Swanberg, 2006). Moreover, relationships with peers and the physical environment of school are also associated with students' life satisfaction (Lindberg and Swanberg, 2006). Despite accumulated evidence showing the correlation between school factors and students' satisfaction with life, few attempts have been made to assess the associations of students' satisfaction with life and more broadly defined school contexts, which consist of multifaceted physical and psychosocial environments (Suldo *et al*, 2006). Furthermore, life satisfaction research has rarely focused on students in developing countries. As students spend considerable time at school, the impact of school experiences on students' satisfaction with life should be investigated.

In Sri Lanka, enrolment in primary school is nearly 100%,and the school dropout rate at the age of 17-18 years is much lower (14%) compared to other South Asian countries. Therefore, school is an important setting for health promotion among young people in Sri Lanka.

The objective of this study was to examine the associations between students' perception of school environment and satisfaction with life among secondary school students in selected educational zones in the Colombo District, Sri Lanka, from the data collected as a baseline survey of a larger study to assess the effectiveness of a health promotional intervention in schools. The intervention aims to improve health and wellbeing of students, their families and teachers and includes a range of activities to create processes that address identified risk factors of diseases.

MATERIALS AND METHODS

Study site and population

Data were collected from 20 Sinhala-medium secondary schools in the Homagama and Horana educational zones in Colombo District, between January and February in 2010. These 20 schools are located in a rural setting, approximately 20-30 km from Colombo City, and shared similarities in terms of sociodemographic characteristics.

First, we purposively selected the Homagama educational zone for the intervention because the zone is a typical setting of rural Sri Lanka, and researchers have established relations with schools in

the zone. Then, we selected an adjacent educational zone (Horana) as control on the basis of the similarity of the basic sociodemographic characteristics of the geographical area. For the survey, we randomly selected 10 out of a total of 15 medium schools in the Homagama educational zone, excluding one Tamil-medium school because of limited research resources. In Horana we also selected the 10 schools that matched the selected 10 schools in Homagama. The matching was based on criteria of the Ministry of Education.

For the survey, we targeted students only in grades 7 and 10, considering its representation of the category and feasibility of collecting data; students in grades 7 and 10 are less subject to preparation for national level competitive examinations, and students in lower grades are difficult to self-administer a questionnaire. The number of grade 7 and 10 classes to be included from each school was decided based on the school size, and the required number of classes was selected randomly. All students of the selected class who were present in the class at the time of the survey were invited to the survey. Students' participation rate exceeded 90% at every school. Of a total of 809 participating students, 21 students were excluded from the current analyses due to a missing value in their responses, leaving data for 788 students.

Sample size calculation

The sample size of students to be included was originally decided based on the sample size calculation for the evaluation of the health promotional intervention. However, we confirmed that the calculated sample size was also large enough to assess the associations between student's perception of school environment and satisfaction with life. For this study, a sample size of 438 students was needed to detect a statistically significant difference in the level of satisfaction with life between students who positively perceive school environment and those who do not, with 80% power at 95% significance level. It was hypothesized that a half of participating students would positively perceive school environment. According to a study reporting that in Western countries 13 years old students with normal/high life satisfaction accounted for 85 % (Currie *et al*, 2008), it was also hypothesized that the difference in the prevalence of normal/high life satisfaction would be 10% between students who positively perceive school environment (estimated at 90%) and those who do not (estimated at 80%). The sample size was increased to 657 by multiplying 1.5, taking into account the design effect related to the cluster sampling.

Data collection

We collected the data using a pretested self-administered questionnaire in Sinhala. The dependent variable of this study was students' satisfaction with life measured by the Cantril ladder. This one-item scale has been found to have good test-retest reliability (r=0.70, p<0.001) and has been widely used in HBSC studies (Currie *et al*, 2008; Muldoon *et al*, 2010). Students were asked to indicate the step on the ladder which best reflects their life:

> Here is a picture of a ladder. The top of the ladder, 10, is the best possible life for you and the bottom, 0, is the worst possible life for you. In general, where on the ladder do you feel you stand at the moment?

Responses were rated on an 11-level scale (0-10).

The independent variable was students' perceptions of the physical and psychosocial school environment that was

assessed by the following nine items: 'My school is clean'; 'School environment is beautiful'; 'I feel happy while in school'; 'I look forward to coming to school'; 'School life is stimulating'; 'Students are friendly'; 'I feel that I am accepted in the school'; 'I can freely talk to my teacher'; and 'I am not victimized, bullied or laughed at'. These items had five response options ranging from 'totally disagree' to 'strongly agree'. A score of 1, 2, 3, 4, and 5 was given to 'totally disagree', 'disagree', 'no comment', 'agree', and 'strongly agree', respectively. A sum score of these nine items was used to describe school environment score (Cronbach's α = 0.81). Potential confounding variables included gender, grade, ethnicity, living conditions, the number of close friends, and the frequency of physical activities taking one or more hours during the past one week.

Data analysis

On the basis of school environment score, students were ranked and divided into quartiles; lowest (≤38), low (39-41), high (42-43), and highest (>43). For life satisfaction, we defined a level of 8 or above as high life satisfaction, and the mean and median levels of our study population were 7.1 and 7.0, respectively.

Bivariate associations between life satisfaction and each of confounding variables and independent variable were analyzed using chi-square test. For multivariate analysis, odds ratios (OR) and 95% confidence intervals (CI) of life satisfaction for school environment score were estimated using logistic regression analysis. Trend association was assessed by assigning ordinal scores (1, 2, 3, or 4) to increasing level of the quartiles of school environment score. Additionally, multiple linear regression analysis

was conducted to confirm the result of the logistic regression analysis, treating life satisfaction and school environment score as a continuous variable. All the confounding variables were adjusted for by multivariate analysis.

As the cluster sampling design, with the school being a primary sampling unit, was used in this study, school clustering was controlled in the multivariate analysis using 'svy' command of Stata 11 (StataCorp LP, College Station, TX). A p-value of <0.05 was accepted as statistically significant.

Ethical clearance

The study protocol was approved by the Ethics Review Committee of the Sri Lanka Medical Association (No. ERC/09-018, 2010 Jan 22). Written informed consent was obtained from the parents of the students who participated in the survey. Students were informed via their parents that their participation in the survey was voluntary and that they would not be penalized for their nonparticipation.

RESULTS

The respondents included 342 children in grade seven and 446 children in grade ten (Table 1). The median age was 12 years in grade seven and 14 years in grade ten. Slightly more than one-half (54.9%) were male, and 98.4% were Sinhalese. The mean school environment score (standard deviation) was 39.8 (4.7), with a range from 9 to 45.

Fig 1 shows the number of students by scores of life satisfaction. The mode of the life satisfaction score was 8. Students with high life satisfaction (≥8) accounted for 44.6% of the total population. The mean level of life satisfaction was 7.11 (7.29 in 7th grade boys, 7.27 in 7th grade

Table 1
Characteristics of students (*N*=788).

	n	*%*
Gender		
Male	433	54.9
Female	355	45.1
Grade		
7	342	43.4
10	446	56.6
Age: median (range)		
Grade 7		12 (11-14)
Grade 10		14 (13-16)
Ethnicity		
Sinhala	775	98.4
Other	13	1.6
Place of usual living during school term		
Own family	729	92.5
Other (relative's house/ boarding house)	59	7.5
Number of close friends		
0	20	2.5
1-2	128	16.2
≥3	640	81.2
Frequency of physical activities taken one or more hours for the past week		
None	102	12.9
1-3 days	342	43.4
4-6 days	236	29.9
All 7 days	108	13.7
School environment score: mean (standard deviation)		
Grade 7, male (*n*=194)		40.3 (4.4)
Grade 7, female (*n*=148)		37.1 (6.5)
Grade 10, male (*n*=239)		40.8 (3.4)
Grade 10, female (*n*=207)		40.2 (4.1)
Overall		39.8 (4.7)

girls, 7.13 in 10th grade boys, and 6.81 in 10th grade girls).

Table 2 shows bivariate associations between life satisfaction and school environment scores, and each confounding variable. Life satisfaction was associated with gender (p=0.008), grade (p=0.048), number of close friends (p=0.046), frequency of physical activities (p=0.018), and school environment (p<0.001).

In the multivariate analysis, the association between life satisfaction and school environment score remained statistically significant (Table 3). Students in the highest quartile of school environment score were significantly more likely to have high life satisfaction, compared to those in the lowest quartile (adjusted OR 2.32; 95% CI 1.35-3.99). There was a significant linear trend association:the

Table 2
Bivariate analysis for the associations with life satisfaction (*N*=367).

Variables	Life satisfaction level ≥8 *n* (%)	*p*-value [a]
Gender		
Male	220 (50.8)	0.008
Female	147 (42.0)	
Grade		
7	173 (50.6)	0.048
10	194 (43.5)	
Ethnicity		
Sinhala	363 (46.8)	0.249
Other	4 (30.8)	
Place of usual living during school term		
Own family	342 (46.9)	0.501
Other	25 (42.4)	
Number of close friends		
0-2	58 (39.2)	0.046
≥3	309 (48.3)	
Frequency of physical activities		
None	42 (41.2)	0.018
1-3 days	151 (44.2)	
4-6 days	109 (46.2)	
All 7 days	65 (60.2)	
School environment score		
Lowest	91 (38.7)	<0.001
Low	92 (43.8)	
High	83 (46.4)	
Highest	101 (61.6)	

[a]Chi-squar test

Table 3
Association between students' life satisfaction and school environment score (*N*=367).

	Life satisfaction level ≥8 *n* (%)	Adjusted OR[a]	95% CI
School environment score			
Lowest	91 (38.7)	1.00	-
Low	92 (43.8)	1.23	0.72-2.10
High	83 (46.4)	1.35	0.79-2.30
Highest	101 (61.6)	2.32	1.35-3.99

[a]Adjusted for gender, grade, ethnicity, living conditions, number of close friends, and the frequency of having physical activities.
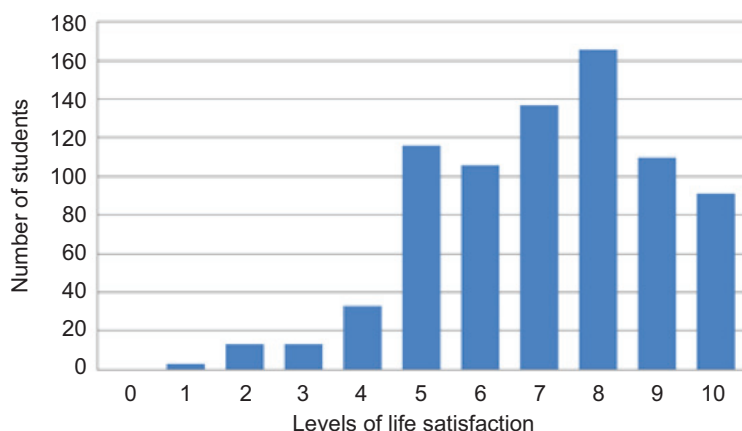
Fig 1–The number of students by levels of life satisfaction.

OR of high life satisfaction increased with increasing school environment scores (*p* for trend <0.001). Multiple linear regression analysis confirmed the association between life satisfaction and school environment score (*p*=0.018).

DISCUSSION

In this study, conducted at 20 Sinhala-medium secondary schools in Sri Lanka, students who perceived a positive school environment were more likely to have high life satisfaction. This finding highlights the importance of physical and psychosocial school environments as potential determinants of positive wellbeing of students.

Our school environment scale focused on school cleanliness, school attractiveness, relations with teachers and peers, satisfaction with school, and bullying. Although a number of studies have assessed the associations between school factors and wellbeing of students, direct comparisons among such studies were difficult due to the lack of consistency in variables and measurement tools (Sellström and Bremberg, 2006; Johnson, 2009). As

a school factor possibly influencing students' wellbeing, some studies included a degree of student participation in decision making process, academic attainment, safety at school, autonomy, justice of school rules, and/or fairness of teachers, while most studies emphasized social support from teachers. Despite the variety of school factors assessed in previous studies, our finding is in line with that of a study conducted in Greece: satisfaction with life measured by Cantril ladder was associated with the school climate comprised of satisfaction with school and school pressure among students aged between 11 and 17 years (Karademas *et al*, 2008). In that study, the scale of satisfaction with school consisted of 3 items, such as 'how do you feel about school', 'school is a nice place to be', and 'I feel I belong to this school', whereas school pressure was measured by a single item asking the degree to which students feel pressure from schoolwork.

Previous studies using Cantril ladder defined a level of 6 or higher as normal/high life satisfaction (Currie *et al*, 2008). Although caution is necessary when comparing our results with those of previous studies, students who showed normal/high satisfaction accounted for 77.4% in our study, which was much lower than the average (88, 85, and 82% in 11, 13, and 15 year olds, respectively) of HBSC surveys (Currie *et al*, 2008). Consistent with HBSC surveys, our study found that life satisfaction was slightly higher in boys than in girls, and in younger students compared with older students (Currie *et al*, 2008).

The present study has some limitations. First, we did not investigate the family affluence of the students, which is known to be associated with student's satisfaction with life (Ravens-Sieberer *et al*, 2009). Thus, we failed to control for family affluence in the multivariate analysis. Second, students' satisfaction with life measured in this study might be affected by the other questions in the questionnaire. This is because single item scales, including Cantril ladder, may be more sensitive than multi-item scales to contextual effects from the preceding questions in a survey (McDowell, 2010). Third, the cross sectional nature of our study design precludes causal inference. Finally, as we did not randomly select the educational zones and one Tamil-medium school in the zones was excluded, caution is necessary to generalize the results of this study.

In conclusion, the present school health study in Colombo District, Sri Lanka showed that students' perception of physical and psychosocial school environment is significantly associated with satisfaction with life among secondary school students. Results of this study suggest that positive changes in physical and psychosocial school environment have the potential to lead to improved life satisfaction of students. As school environment defined in this study focused on school cleanliness, school attractiveness, relations with teachers and peers, satisfaction with school, and bullying, positive changes in these areas might be particularly important.

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