

ABSTRACT

A study of

RESIDENTIAL AND SCHOOL LIGHTING CONDITIONS OF SCHOOL GOING CHILDREN IN BOMBAY CITY.

The study was undertaken to identify existing lighting condition for study in schools and residences of school going children in Bombay city. The quantity and quality of light available was found out and compared with standards laid down by Bureau of Indian Standards. The student study practices in terms of study time type of lighting used for studying, space available for individual use, location of study area and study table were investigated. The incidence of eye defect among the student in relation to situational variables like, age, heredity, nutritional status, quantity of light, quality of light, time of study, time spent on study work area and its relation to source of light and posture were also found out.

Responses from 20 schools 10 municipal and 10 private schools and residential lighting condition of 353 students studying in 3rd, 4th, 6th, 8th and 9th standard of a municipal and private school were found out.

Interview schedule was developed based on objectives of the study. The schedule for schools consisted of various characteristics of schools like size of classrooms sessions type of light number of fixtures distance of first and last row of bench from blackboard, height of light fixtures and furniture. Quantity of light available was measured with GEC lux meter on bright sunny days cloudy days and rainy days at different timings like morning, afternoon and late afternoon with and without

artificial light at various points in classrooms and then the average value of illumination was calculated.

Residential observation schedule consisted of questions regarding general information, nutritional status of child, time schedule of child, quantity and quality of light available at work area and postural position.

Date was analysed to assess the quantity and quality lighting and related condition of studying.

In general the quantity of illumination in residence were for below the standards recommended by the Bureau of Indian Standard. The brightness ratio was also not conform to the standard. It created objectionable contrast in brightness between the task light and general light when both were present. Direct glare constituted a major factor in the poor quality of light. Scores for direction, distribution and diffusion were low. The adequacy scale for evaluating the lighting condition showed extreme inadequacy in quantity and quality of lighting. The municipal school students had poorer lighting condition than the private school students.

Analysis of study practices revealed that most students studied for one to two hours a day. The private school students spent more time on studies than the municipal school students. Majority did not have desk and special study area in both the groups. Posture varied according to illumination. About 56 percent of students had poor posture.

Incidence of eye defect was more among the private school children than among the municipal school children. Age, heredity, and nutritional status had direct relation with the incidence of eye defect.

Correlation between 9 major variables have computed with reference to incidence of eye defect. In pooled within group correlation matrix, with incidence of eye defect age, nutritional level, heredity quantity of light and posture have correlated.

In all correlations quantity of light correlated negatively with postural position of students.

Among the private school children quantity and quality of light correlated negatively with incidence of eye defects and nutritional level, age and heredity correlated positively.

Among the municipal school children age, nutritional level, time of study and posture correlated positively with incidence of eye defect.

Municipal schools were better in quantity and quality of light than the private schools as their school buildings were specially designed for that.

The consumers in general need to know what constitutes adequate lighting as far as quantity and quality are concerned. In addition they need to know the desk size, finish and placement also contribute to provision of good study lighting condition. Optimum reflecting surfaces on desk, ceilings, walls and floor important aspects to be considered to ensure maximum reflectance possible without producing glare.

All efforts should be made to increase quantity of light in residences and private schools. Other factors can be worked on simultaneously, like shielding to avoid glare, by changing the shade or fitting a diffusing disk or bowl in luminaires.

Such improvements would bring the lighting and study conditions to a higher level but would not insure that students studied under good condition.