INTRODUCTION

Dental caries is a chronic disease of hard tissues of the tooth, characterized by alternating phases of demineralization and remineralization, which can lead to cavitations and eventually tooth loss.1 Dental caries affects 60% - 90% of school children and a vast majority of adults across the globe and is known to restrict activities in schools, at work and at home, causing millions of school and work hours to be lost each year all over the world. Moreover the physical, functional, social, psychological and emotional impacts of dental caries have been well documented to diminish the quality of life.2,3,4

In most developing countries prevalence of dental caries is on the rise, probably because oral diseases are the fourth most expensive diseases to treat and the access to services is very limited.5 According to World Health Organizations pathfinder survey which examined over nine thousand individuals in twenty one districts of Pakistan, dental caries was found the single most common chronic childhood disease in the country being 5 times more common than Asthma and 7 times more common than hay fever.6 Khan reported that more than 50% of children between ages of 12-15 years are caries free however on the negative side 97% of all carious lesions are untreated.7 Unfortunately no study regarding prevalence of dental caries
has been conducted in Lahore specifically targeting the large amount of children studying at poor locality schools.

**METHODOLOGY**

This study was carried out in two phases in September-October 2011. In the first phase data of all poor locality schools affiliated with government of Punjab, board of Intermediate and Secondary education (BISE) Lahore was obtained from the education department government of Punjab. A multistage random sampling technique was then adopted which consisted of following stages:

- At the first stage a random selection between Lahore City and Lahore Cantt from the data of Lahore district was made.
- Once Lahore city was selected the second hierarchy of structure was considered i.e. the poor locality schools. Out of the 34 poor locality schools registered with Government of Punjab (Board of Intermediate and Secondary Education) Lahore, 10 were selected using a random number technique.
- A formal permission was then taken by the Incharge of each poor locality school by explaining the complete study protocol and the benefits. Before starting the actual study a pilot study was conducted to overcome any issues in actual study. In this pilot study a total of 40 students were recruited and examined by the calibrated dentists for the presence of dental caries using the WHO criteria for recording caries. The parameters measured were df and DMF. This pilot study was conducted over a period of three days in one of the selected schools.
- In the second phase all sixteen hundred and seventy three poor locality school children aged 5 to 14 years were included in the study from the 10 selected schools. The age distribution of children was based on the index age groups as per World Health Organization guidelines.

<table>
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<tr>
<th>Age Group</th>
<th>Number</th>
<th>Percentage</th>
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<tr>
<td>5-11 years old</td>
<td>1113</td>
<td>66%</td>
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<tr>
<td>12-14 years old</td>
<td>560</td>
<td>34%</td>
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The study team consisting for four calibrated dentists was divided into two groups i.e. Group A and B. Each group consisted for two members. Group A was assigned to take history and socio demographics of the children using standardized validated form and Group B was assigned to examine the oral condition. Groups A members recorded the information on missing, decayed and filled teeth form while Group B members were examining the children. The oral examination was carried using a wooden tongue depression and explorer under sunlight while seating every child on chair to identify presence of caries. Although the examiners checked soft tissue including gums tongue palate for any gum disease, calculus or abnormality but the main emphasis was given on caries, missing and filled teeth. The information recorded included:

1. Demographic data i.e. name of school, name of student and age of student.
2. Data for dental caries i.e. Number of decayed and filled deciduous teeth (df), Number of decayed filled or missing permanent teeth (DMFT).
3. Data for oral hygiene as per parameters recommended by the WHO: existence of food deposits, calculus, gingivitis and periodontal disease. Thus the oral hygiene was divided into 4 categories i.e. good, fairly good, poor and very poor; as per WHO recommendations.

Data were entered and analyzed using SPSS version 16.0

**RESULTS**

A total of sixteen hundred and seventy three poor locality school children aged 5-14 years; 1113 (66%) 5-11 years old and 560 (34%) 12-14 years old were examined for dental caries and oral hygiene status. The overall caries prevalence among the study group was 71%.

Table 1 reports the decayed filled (df) primary teeth and decayed filled and missing permanent teeth (DMFT) of the study sample according to the age groups i.e. 5-11 years and 12-14 years respectively.

Table 2 reports the oral hygiene status and the corresponding dental caries index scores i.e. df and DMFT scores of the study sample.
DISCUSSION

The aim of this study was to investigate the Prevalence of dental caries among poor locality school children of Lahore Pakistan. The results of the study show that the overall prevalence of dental caries in the study sample was 71%. This finding is in line with studies conducted in China where the prevalence of dental caries among 5-7 years old school children was found to be 76.6% and Mexico where the prevalence of dental caries among 6-10 years old school children was found to be 65.5%.9,10 The finding is however different from study conducted in United Kingdom where lower levels of dental caries of 39.6% among 5 years old were recorded.11 Although a decline in caries has been observed in most developed countries, its prevalence still poses a considerable challenge. Alone in the USA where there is expected to be less caries than anywhere else national surveys have reported that the prevalence of any dental caries among children aged 12—17 years declined from 90.4% in 1971—1974 to 67% in 1988—1991; severity (measured as the mean number of decayed, missing, or filled teeth) declined from 6.2 to 2.8 during this period.12,13,14,15 However it is still surprising to note that these decreases in caries prevalence and severity have been uneven across the general population; the burden of disease now is concentrated among certain groups and persons. For example, 80% of the dental caries in permanent teeth of U.S. children aged 5—17 years occurs among 25% of those children.15

According to the result of the path finder survey of World Health Organization (WHO) more than 50% of children of Pakistan were found to be caries free 7 however, the results of this study have revealed that 71% of poor locality school children have dental caries. The finding is also far away from the WHO goal of at least 80% of caries free children.16

The results of this study also show that the mean df score in the 5-11 years age group was 2.98. This finding is in coherence with other studies conducted on similar age groups (6-10 years) in Mexico where mean dmf score was 2.36,10 In Saudi Arabia where the mean dmf score among 5-12 years old school children was reported to be 3.20.17 However this finding differs from the study of Bardal et al in Brazil among 7-12 years old school children where the mean dmf score was found to be 1.82.18

The mean DMFT score among 12-14 years old age group of this study was 3.70. This finding is much higher than the DMFT of 12-15 years old school children of UAE where mean DMFT was 2.1,19 China where mean DMFT of same age group was 1.2,20 India where mean DMFT of 12-15 years old school children was 1.121 and in Nigeria where mean DMFT for 12-15 years old age group was 1.0.22 The WHO global data of 2003 has shown an increase in DMFT of 12 years old Pakistani children from 0.9 to 1.38.23 The results of the current study show a much higher value (3.70) of DMFT among 12-14 years old children.

The possible limitation of the study is exclusion of females from the study sample but that is well justified since no female student was enrolled as permanent student in any of the poor locality schools selected for the study. One of the strengths of the study is the size of sample, which involved numerous localities and examined a sufficient number of poor locality school children in different parts of Lahore City. Also all the examiners were well trained and calibrated before the study in order to enhance the precision of results and to reduce bias.
Based on the findings of the study the recommendations for future research are that studies should now be conducted in different districts of the country in order to further explore the prevalence of dental caries among poor locality school children which will be helpful in gaining immediate attention of policy makers and political administrations. The recommendation for future policy is that the health services should immediately be reoriented towards a preventive approach which should encompass the poor locality schools which are being neglected currently and have a vast majority of children enrolled for basic education. The health services should have specific preventive programs in poor locality schools, elementary schools and low-income areas to address the growing burden of oral diseases. Surveillance of the caries prevention programs should be carried out to evaluate the benefits of the programs, detect groups with greater needs, and identify the communities with higher risk of dental caries.

REFERENCES


