ORIGINAL ARTICLE

OPEN ACCESS

Oral & General Health Status of Charity Based Madrasa Students – A Cross-sectional Survey in Abbottabad Region

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Received: June 07. 2023 Revised: September 22, 2023
Accepted: November 18. 2023 Published: January 05, 2024
DOI: https://doi.org/10.70394/jhbsmdc.v3i2.27

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Abstract

Objective: To evaluate the oral and general health status of Madrassas students.

Methodology: A cross-sectional survey was conducted on two charity-based local Madrassas in Abbottabad City, Pakistan. Data was gathered by convenient sampling technique and the sample size was n=101 students, between the age of 3-21 years. There was n=63 female & n=38 male study subjects in total. Upon oral examination following variables were recorded; 'DMFT' scores, 'orthodontic Treatment Needs' and a questionnaire of oral hygiene practices. On the other hand, Medical Physical Examination' was performed and recorded for the same participants. Although dental and medical data was prerecorded on the structured survey form and analyzed by using IBM-SPSS v.26.

Results: A total of 86.1% of students were performing once daily tooth brushing and in contrast, 82.2% of participants have had a frequent intake of a sugary diet on daily bases. Meanwhile, only 20.8% of participants Visited the dentist or were taken to the dental clinic. There were 70% of participants diagnosed with carious lesions and caries scores (DMFT score) were ranged between 1 to 10, hence caries trends were more common in female participants. Meanwhile, 36.6% of subjects were reported with a high prevalence of caries along with malocclusion. 'Medical Physical Examination' results showed significant differences among most of the female students, low Body Mass Index -BMI rate, hence pallor skin symptoms commonly in males. While 51% of females have reported Scabies disease.

Conclusions: The overall health of underprivileged pupils were compromised. This population is neglected because of many social, environmental and economic factors, therefore more public health efforts are obligatory to promote the overall health of the targeted population.

Keywords: Oral hygiene, Caries, Malocclusion, DMFT, Medical physical examination, BMI, Scabies

Conflict of Interest: None **Funding Source**: None

Introduction

Health is defined by World Health Organization (WHO, 1948) as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'. Hence, oral health is also an essential part of our overall health. Unfortunately oral disease burden is increasing day by day, as WHO estimated 3.5 billion of population suffering from oral diseases globally; like dental caries & periodontal diseases.[1] Poor oral hygiene is leading factor to cause dental caries and periodontal diseases.[2] Common oral diseases such as tooth decay and gum diseases are preventable if an individual has good oral hygiene, follows regular dental visits for early diagnoses of disease and cure. Oral diseases are also prevalent and affecting children as well, however primary prevention is feasible way to reduce burden of such diseases.

Subsequently, underdeveloped nations have been facing general health issues including communicable diseases. WHO reported, more than 200 million people effected from Scabies worldwide.[3] Scabies is a human skin parasitic infestation cause by 'Sarcoptes scabiei var hominis' and this skin disease is common all over the world. It is most common among population living in highly populated and tropical areas.[4] According to WHO the children living in poor-resource areas are affected from scabies more than 10% in world.

Body Mass Index (BMI) is a method of screening ,to estimate weight categories (high or low) of population which is a causative factor to health problems and

linked to malnutrition.[5]

Present study aimed to determine the oral & general health status of Madrassa's students by assessing the Dental Caries, Malocclusion, Oral Hygiene status and complete Medical Physical Examination.

Methodology

Madrassa in Abbottabad city, KPK, Pakistan. Madrassa is an educational-institution where Islamic education given to communities and these institutions are funded by both government and non-government philanthropist organizations .This study conducted in February 2022 by convenient sampling technique under a survey titled 'Community Out-reach Health Awareness Program' . A total number of 101 (male n=38 & female n=63) Madrassa students were examined for dental & medical health status. During oral examination variables were recorded; such as 'DMFT' for dental caries, malocclusion and verbal questioning about oral hygiene practices , frequency of tooth brushing, and daily intake of sugary diet. Also "Medical Physical Examination" of study subjects were performed by medical doctors and recorded; including BMI, Pulse rate, appearance of skin (Scabies/Pallor/Anemia), Clubbing, Koilonychia, Cardiovascular examination (CVS),Chest, GIT, C.N.S. All data were recorded on structured survey forms. Furthermore, data was analyzed by IBM-SPSS v.26.

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Results

Total 101 study participants were screened (girls n=63 -62.4% & boys n=38 - 37.6%) between the ages of 3-21 years (mean=1.66, SD=0.515) which further categorized into 3 groups, Group1= 3 - 10 years (35.6%), Group2 =11-20 years (62.4%), Group3=21(2%).

Participants of this study were questioned about their daily oral hygiene practices. Significance results were observed in responses to; tooth brushing once daily 86.1% and only 24.8% flossing daily (mostly in the age group 11-20 years). Hence daily intake of a sugary diet was also very common (82.2%) among both male/female participants. Although only 20.8% of the study subject visited the dentist in the past and 78.2% never seek dental professional assistance.

"Dental caries scores" and "orthodontic treatment needs" were observed during the oral examination. DMFT scores were recorded between 1 to 10 in almost 70% of participants of the study {**Figure:1**}, while 30% reported no carious lesion (0 = scores) in which the maximum was from the age of 11 to 20 years and the minimum was from 3 to 10 years. {**Figure:2**}. Female participants reported more carious teeth as a contrast to male subjects {**Figure:3**}

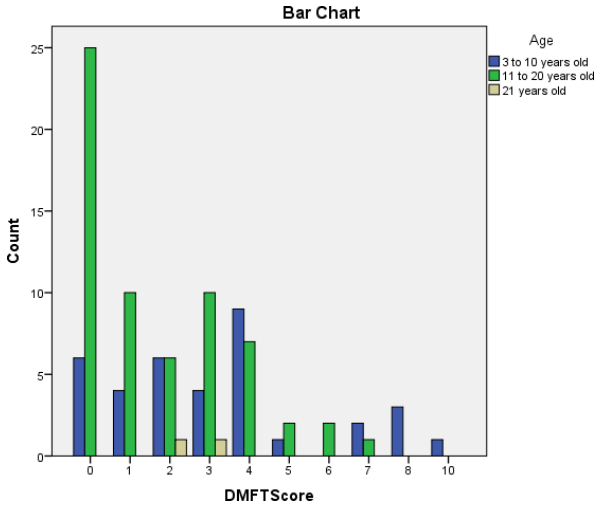


Figure 1. DMFT score.

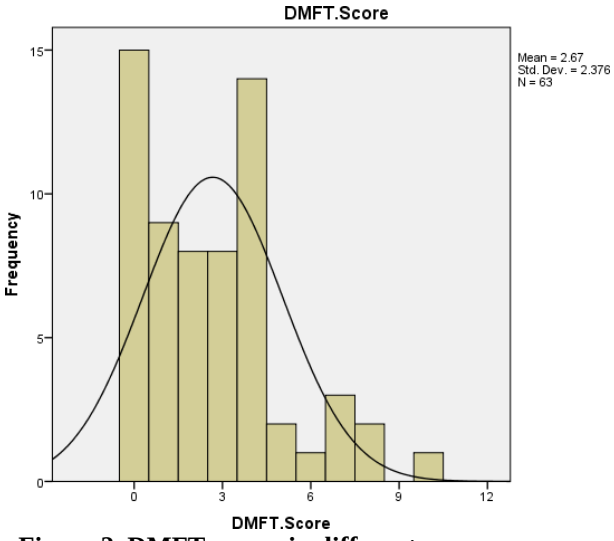
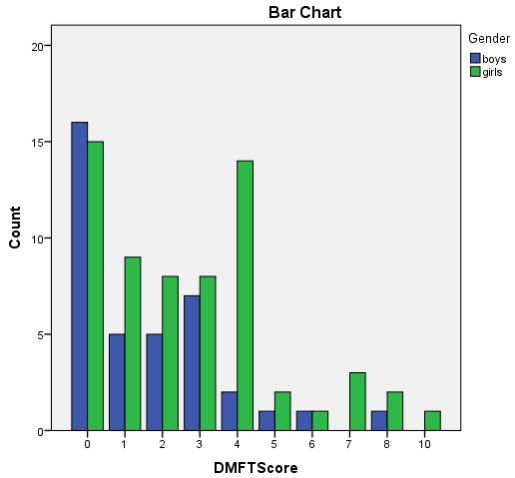


Figure 2. DMFT scores in different age groups

Although 37 (36.6%) out of 101 participants have been diagnosed with malocclusion and remaining 64 (63.4%) subjects have well-aligned dentition {**Figure: 4**}. Pupils who need orthodontic treatment also showed carious teeth (DMFT fluctuated scores were 1,2,3, 4,7,8 &10) which is alarming for their future oral health state and the dire need to treat caries and malocclusion.

Subsequently, a Medical Physical Examination of study participants was performed, most significant results were found a low BMI rate among 70.73% of participants (BMI-range between 10.23 to 17.90) in

which female participants were the majority (63%) showed a low BMI rate {**Figure:5**}. Most significant responses were recorded while examining skin; a total of 51% of females were reported with signs & symptoms of scabies disease and pallor skin was



observed among males 31.42% & 29.78% in females {**Figure:6 & 7**}.

Figure 3. DMFT score in male and female

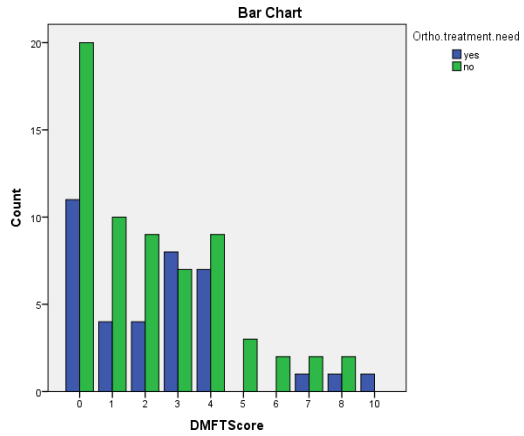


Figure 4. DMFT Score & Orthodontic Treatment Need

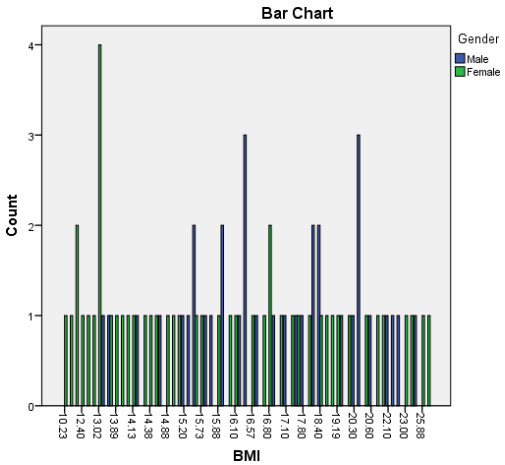


Figure 5. BMI Rate: 70.73% students have low BMI, (range from 10.23 to 17.90) in which 63% female were showed low BMI rate

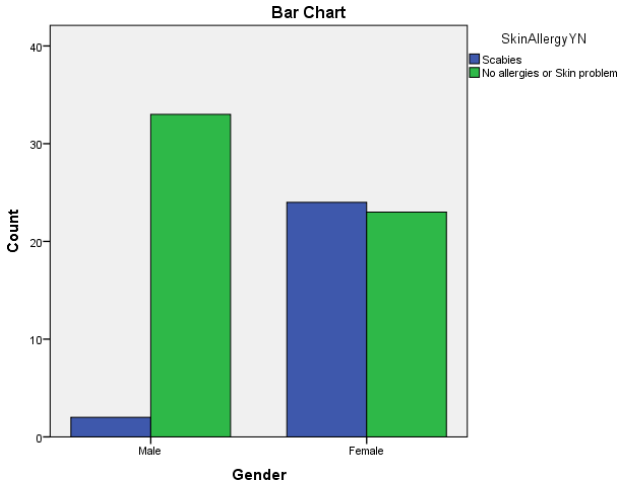


Figure 6. Scabies cases reported 51% in female & 5.7% in male students of madrassa

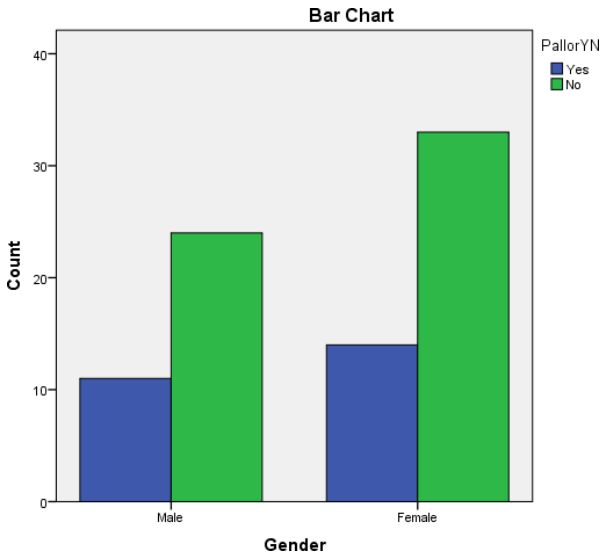


Figure 7. Pallor skin were reported 31.42% in male & 29.78% female

Discussion

Poor population has compromised general and oral health (6). World Health Organization estimates more oral diseases among people with low socioeconomic class(7). Also treatment of oral disease is quite expensive along with scarcity of dental care services for all population in low middle income countries including Pakistan(1). The present study targeted population of a lower socioeconomic class and their oral and general health practices were poor.

Oral diseases including dental caries are more common all over the world, due to its multi factorial nature and existing health inequalities (8). Oral health related results of present study showed; 70% participants

diagnosed with dental caries with females more affected than males, and low frequency of tooth brushing daily. Precisely these findings are similar to another study done in Bangladesh namely "oral health status among Madrassa going children in selected area of Dhaka City, Bangladesh" (9). Yet another study conducted on madrassa students showed high caries rate. A study to measure caries with serum iron level showed caries prevalence similar to our study but no correlation (10). The increased frequently intake of sugary diet, inadequate brushing timing & technique is directly related to poor oral hygiene which results in carious lesions. In our study, maximum participants although had brushing frequency ,once daily, but with faulty brushing technique, and more intake of sugary diet they had poor oral hygiene . The results were similar to another study held in Indonesia; "Habit of tooth brushing with the dental caries incidence"(11). The caries lesion affects the dentition more with malocclusion as results showed 36.6% students requiring orthodontic treatment. The high caries scores in malocclusion and mal- aligned were seen also at India; "Dental Caries and its Relationship to Malocclusion in Permanent Dentition Among 12-15 Year Old School Going Children"(12).

The Medical Physical Examination showed significant low BMI rate, number of Scabies cases and Pallor skin. Present study results illustrated 70.73% with low Body Mass Index- BMI in overall study participants , majority were females (63%). Causes of being underweight were many like , genetics, unhealthy eating or deficient nutrition intake, high metabolic rate, increase physical activities, or physical illness or chronic diseases. Consequences of low BMI; were osteoporosis, hair, nail & teeth problems, prone to get disease frequently, risk of anemia and many more(13). One of reasons for low BMI were increased physical activities of Madrassa students since they are performing household chores and other labor work without healthy diet. Imbalance nutritional diet due to low socioeconomic status also affects their mental health but we did not observe any mental problems. We also did not observe any sign or symptom for chronic disease/illness during "Medical Physical Examination" which might have been related to their low BMI. Nevertheless pallor skin were observed among study subjects which could also be attributed to cold weather and study done in winters(14).

We did find Scabies, which is an endemic and contagious disease spreading quickly to family members, school children or close contact groups of people. Present study reported cases 51% in female & 5.7% in male participants. A study was conducted for prevalence of Scabies in welfare home Malaysia, found 31% cases with male predominance (15). Another study in Ethiopia with malnutrition, poor hygienic life style and overcrowded population, also showed scabies with 11% of school children dropping from school. (16). A cross-sectional survey was conducted in Timor-Leste country for prevalence of Scabies with 30.6% cases. Yet another study showed participants (children) dwelling in rural areas, more affected. (17). Likewise, our study found scabies in female madrassa students, because of over populated area, small building with poor infrastructure, poor living standards, poor hygiene and living with close contacts.

This particular group of Madrassa students direly need basic life facilities and health education to fulfill their health state & wellbeing. Burden of diseases can reduce by public health intervention as stated by WHO. More public health program in collaboration of medical and dental professionals should be organized on routine basis and complete health coverage provided to uplift these low socioeconomic class.

The evidence of this study is limited due to smaller sample size and result could not be generalized. Furthermore, for complete workup , investigations should also be performed. A multicenter study with detail workup could clarify all doubts, and justify results further.

Conclusion

The majority of these underprivileged Madrasssa students were suffering from oral & general health problems. Lack of facilities and health awareness are responsible for compromisedhealth and well-being the root cause of their poor health. Although there is dire equity to plan and should be implemented "targeted preventive approach" - health program to promote this specific population's health. As well as provide them easy and free or low-cost access to medical and dental professional care services on the local and national levels.

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Authors Contribution:

[1,2] Substantial contributions to the conception or design of the work; The acquisition, analysis, or interpretation of data for the work; Final approval of the version to be published; Drafting the work or revising it critically for important intellectual content.