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A Study to Evaluate the Health Status of School Children Studying in Selected Government High Schools at Kuppam

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Abstract: The health and well-being of school-aged children are critical for their academic performance and overall development, yet they face numerous health challenges. This study aimed to evaluate the health status of school children in selected Government high schools at Kuppam, Andhra Pradesh, and to identify associations between health status and demographic variables. A quantitative, descriptive cross-sectional design was used. The study involved 110 students aged 11-15 years from a Government High School in Beggilipalle, Kuppam, selected via convenient sampling. Data were collected using a structured questionnaire and health assessment proforma. Results revealed slightly more female (56.4%) than male (43.6%) participants, with most from rural areas and having parents with primary/secondary education. A significant portion (76.4%) of children were underweight. Most girls who attained menarche had regular cycles and used sanitary napkins. Significant associations were found between academic grade and scalp condition, skin texture, and tongue condition, with Grade VIII students showing higher incidences of dandruff, dry skin, and coated tongue. A significant association was also found between gender and current medication usage. The study highlights the need for targeted health interventions, improved nutrition, and health education in these schools.

Keywords: *School Children; Health Status; Cross-Sectional Study; Nutritional Status; Rural Health; Academic Grade; Kuppam.*

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I. INTRODUCTION

The World Health Organization sees it as more than just not being sick; it's about feeling great physically, mentally, and socially – a complete state of well-being. And that's where School Health Programs (SHPs) come in. They're absolutely vital because healthy kids learn better, it's that simple(1,2). Think about it: in a country like India, where over a quarter of the population is kids, SHPs are a really smart way to encourage healthy habits that stick for life. Now, school-aged kids aren't immune to health problems. We're talking about things like malnutrition, infectious diseases, and increasingly, issues like obesity and mental health challenges(3,4).When kids aren't getting enough nutrients, like iron, B12, zinc, iodine, or calcium, it can cause real problems. Anemia, stunted growth, and even trouble with thinking clearly are just a few examples(5). And it's not just nutrition. Things like food poisoning, sprains, measles, the common cold, flu, and ear, nose, and throat issues – things like ear infections, sinusitis, and tonsillitis – these can all sideline students(6). Globally, it's estimated that about 35% of the burden of disease is related to adolescents. In India, research has highlighted high rates of both undernutrition and other illnesses among schoolchildren, especially in rural areas. Take anemia, for example. Andhra Pradesh has reported that it affects 60% of women aged 15 to 49, and a shocking 69% of adolescent girls!

This can obviously have a huge impact on their schoolwork and their future health as mothers(7,8). Plus, mental health is becoming a bigger and bigger concern. Around 7.3% of Indian kids between 13 and 17 are reporting mental health disorders(5,6,7).That's why this study, focusing on the health of school children in Kuppam, a region within Andhra Pradesh, is so important. It aims to pinpoint the specific health problems these kids are facing. Armed with that knowledge, we can then develop targeted programs to improve their long-term health and set them up for success in school and in life.

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II. MATERIALS AND METHODS

➢ *Research Approach and Design*

A quantitative research approach with a descriptive cross-sectional design was employed to evaluate the health status of school children at a single point in time.

➢ *Setting and Population*

The study was conducted in a selected Government High School in Beggilipalle, Kuppam, Andhra Pradesh. The target population comprised children aged 11-15 years studying in this school.

➢ *Sample Size and Sampling Technique*

The sample size was calculated using Cochran's formula, considering a 10% prevalence of ear infection, 95% confidence level, and 5% margin of error, yielding an initial sample of 71. Adjusting for a 20% non-response rate and margin of error for smaller sample size, a sample of 110 students was finalized. Convenient sampling was used to select participants based on availability and willingness.

➢ *Inclusion and Exclusion Criteria*

Included were high school students aged 11-15 years in the selected government high school at Kuppam. Students who are absent during the data collection were excluded.

➢ *Data Collection Tool*

- *The Tool Consisted of Two Sections:*

✓ *Section A (Demographic Variables):*

Included age, gender, academic grade, residential area, parental education and occupation, family income, family structure, dietary habits, and access to healthcare.

✓ *Section B (Health Status):*

A structured health assessment proforma was used to assess physical health indicators (allergies, vision, ear conditions, orientation, posture, hygiene, skull/scalp, hair, skin, conjunctiva, pupils, gums, tongue, dental caries, dentures, thyroid, lymph nodes, lung/heart sounds, bladder/bowel patterns) and menstrual health for girls (menarche status, age at menarche, cycle regularity/duration, hygiene). Body Mass Index (BMI) was also assessed.

➢ *Validity and Reliability*

Content validity was ensured through expert consultation. Reliability of the self-structured knowledge tool (alpha = 0.73) was tested using Cronbach's Alpha on a pilot study of 10 participants.

➢ *Ethical Considerations*

Ethical clearance was obtained from the Institutional Research Committee (IRC) & Institutional Human Ethics Committee of PESIMSR, Kuppam. Permission was obtained from the school headmaster.

➢ *Data Collection and Analysis*

Data was collected and tabulated and analyzed using descriptive (frequency, percentage) and inferential statistics (Chi-square test) with SPSS software version 21.0.

III. RESULTS

➢ *Demographic Profile of Participants*

The study included 110 high school children. Key demographic findings are slightly more females (56.4%) than males (43.6%). All participants were from rural areas (100%). Class VI had the highest representation (28.2%). The majority of fathers (48.2% secondary, 47.3% primary or less) and mothers (48.2% secondary, 45.5% primary or less) had school-level education. Most fathers (90.9%) and mothers (95.5%) were daily wage earners. Nuclear families were predominant (72.7%). A majority (76.4%) of families had a monthly income of ≤15000 Rs. Most participants were non-vegetarian (88.2%). A large proportion (76.4%) were underweight, while 18.2% had normal weight and 5.5% were obese. Most (74.5%) had healthcare access within 1 km.

➢ *Menstrual Health of Female Participants*

Findings for the 62 female participants are summarized among them, 45.2% (n=28) had attained menarche, with 54.8% not yet having reached it. The most common age at menarche was 12 years (35.7%), followed by 13 years (28.6%). All 28 participants who had reached menarche reported regular menstrual cycles. The most frequent cycle duration was 5 days (57.1%), and the most common cycle length was 28 days (60.7%). All 28 used sanitary napkins for menstrual hygiene.

➢ *Health Status Indicators*

The vast majority had no drug allergies (99.1%), food allergies (97.3%), or other allergies (98.2%). Most (85.5%) were not on current medications; some took iron tablets (9.1%). Vision was normal in the right eye for 94.5% and left eye for 94.5%. Most had no ear wax in the right (96.4%) or left (97.3%) ear, and no ear pus. Ear air conductivity and bone conduction were largely normal. All participants were oriented to time, place, and person (100%), had normal posture (100%), neat hygiene (100%), and normal skull (100%). Most had a clean scalp (94.5%), though 5.5% had dandruff. All had black hair (100%). Skin texture was moist for 71.8% and dry for 28.2%. Most had no skin diseases (99.1%). Conjunctiva was pink and pupils reacted to light for all. Most had pink gums (93.6%), though 6.4% had pale gums. Tongue was moist for 94.5%, with 5.5% having a coated tongue. Dental caries were present in 13.6%. Most had normal thyroid (99.1%), lymph nodes (100%), lung sounds (100%), heart sounds (100%), and bowel pattern (100%). Bladder pattern was normal for 99.1%.

➢ *Association of Health Status with Demographic Variables*

Association with Gender: A statistically significant association was found between gender and current medication usage ($p=0.032$), with medication use varying by gender. No other significant associations were found between gender and other health variables like allergies, vision, ear conditions, scalp, skin, dental health, or BMI.

Association with Academic Grade/Class: A statistically significant associations were found between academic grade and scalp condition ($p=0.038$), skin texture ($p<0.001$), and tongue condition ($p=0.002$). A higher incidence of dandruff was noted in Grade VIII. Grade VIII also showed the highest frequency of dry skin, while Grade VI had more moist skin.

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Grade VIII students also had a higher incidence of coated tongue compared to other grades.

IV. DISCUSSION

This study evaluated the health status of government high school children in Kuppam, revealing several key findings. The demographic profile indicated a predominantly rural population with parents primarily engaged in daily wage labor and having school-level education, which aligns with socioeconomic contexts in many rural Indian settings.

The high prevalence of underweight children (76.4%) is a significant concern, consistent with findings from other Indian studies that report high rates of malnutrition among school children. This underscores the need for nutritional interventions.

The menstrual health findings among girls, such as regular cycles and good hygiene practices (use of sanitary napkins), are positive. However, ensuring continued access to information and resources for menstrual hygiene management remains important.

The general health assessment showed that most children did not report allergies and had normal vision and ear health. However, the presence of dandruff (5.5%), dry skin (28.2%), coated tongue (5.5%), and dental caries (13.6%) points to areas where hygiene and health education can be beneficial.

The significant association between academic grade and specific conditions like dandruff, dry skin, and coated tongue, particularly in Grade VIII, suggests that certain age groups or academic levels might face unique challenges or have different health awareness levels. This could be due to developmental changes, peer influences, or varying levels of health education received. The association between gender and medication usage warrants further exploration to understand the underlying reasons.

The study by Singh et al. (2017) also found a high percentage of underweight children (72.7%) in an urban setting, along with anemia and dental issues, similar to our findings on underweight status and dental caries(9). Kumar (2020) reported that 45.85% of primary school children in Telangana had morbidities, with a high prevalence of malnutrition(10).

Sharma (2024) found nutritional deficiencies (29.5%) and dental caries (28.1%) as common issues in Bhopal, which resonates with our observations(11). The limitations of this study include the use of convenient sampling from a single school, which may limit generalizability.

V. CONCLUSION

The study on the health status of high school children, revealed a high prevalence of underweight children and specific health concerns such as dandruff, dry skin, coated tongue, and dental caries. Associations were found between academic grade and scalp, skin, and tongue conditions, and between gender and medication use. These findings highlight the need for targeted health interventions focusing on nutrition, hygiene education, and regular health check-ups. Addressing these issues can significantly improve the overall well-being and academic potential of school children in this rural setting.

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