ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 2, Issue 1, Month: June 2023, Available at: https://hijnrp.journals.ekb.eg/

Assessment of Knowledge and Practices among School Age Children about Dental Problems in Relation with Residence

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Abstract

Background: Dental diseases have a detrimental childhood, as have an impact on self-esteem, eating ability, nutrition and general health. Oral health knowledge is an essential prerequisite for health-related practices. **Aim of the study:** The study aimed to assess knowledge and practices among school age children about dental problems in relation with residence. **Research Design**: A descriptive design used to conduct this study. **Setting:** The study conducted at El Shahid Amr Abdel Guyed primary school at Kafr Tohormos city and Nasr El din primary school at Haram city. **Subjects:** A purposive sample composed of (210) child aged from 10 to 12 years old. **Tools of data collection:** Two tools, **Tool [I]** Interviewing Questionnaire to assess children' knowledge regarding dental problems. **Tool [II]** Reported practices checklist to assess children' practices regarding dental care. **Results:** The study finding showed that 73.3 % of the studied sample had poor level of total knowledge about dental problems. Moreover, 46.2 % of the studied sample had inadequate level of total practices about dental care, and there was a strong positive correlation between school age children knowledge and their practice regarding to dental care related to residence. **Conclusion:** From this study it can be concluded that the majority of studied sample had poor level of total knowledge about dental problems and less than half had inadequate level of practices regarding dental care. **Recommendation:** Establish continuous educational programs for school age children to teach the proper practices for dental care.

Key Words: *Dental problems, Dental caries, Oral health, School age children*

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Introduction

Oral health is a state of being free from chronic or facial pain, oral cancer, oral infection, periodontal (gum) disease, tooth decay, tooth loss, and other diseases that limit a children capacity in biting, chewing, smiling, and speaking, as well as psychosocial well-being. Good oral health maintains general health. Oral diseases such as dental caries, periodontal diseases, and tooth loss are becoming more prevalent in low and middle-income countries **(Dye et al., 2018)**.

Dental diseases have a detrimental effect on quality of life from childhood through old age, having an impact on self-esteem, eating ability, nutrition and health. In modern society, a significant role of the teeth is to enhance appearance. Oral diseases are associated with considerable pain, anxiety and impaired social functioning **(W.H.O, 2018).** Tooth decay is one of the most common chronic states of school age children. Untreated fang decay can cause pain andinfections that may lead to issues with eating, speaking, playing, and learning; Dental disease is preventable, treatable and can be caught early. Variety of diseases affect the oral cavity involving dental caries, dental erosion, periodontal disease, dental infection, missing teeth and traumatic injuries to primary and permanent teeth **(Dean et al., 2018)**.

Oral diseases are also a significant problem in high- income countries. Their increasing incidences are due to the adoption of a Western lifestyle and changing living conditions. Furthermore, their prevalence rates have increased in the last few years. Dental caries are the most prevalent oral health problem globally, affecting 60% to 90% of schoolchildren. Oral health knowledge is an essential prerequisite for health-related practices **(Rayapudi & Usha, 2018)**.

To emphasize a positive attitude toward oral health, schools should include oral health education programs in the curriculum of school children. Before designing an effective program for oral health promotion, it is important to consider the status of oral health knowledge among children **(Eisen, et al., 2018)**.

It is also expected that oral health education is based on the grounds that it will enhance these children's oral health knowledge by transforming it into appropriate preventive behaviors, consequently resulting in better oral health **(Eisen, et al., 2018)**.

Children must be known able of not only the causes of oral illness but also the current preventive measures to avoid them, such as fluoridation of drinking water. School programs will enable children to make decisions about Oral Cavity health regarding their own children in the future or even their community. Therefore, the evaluation of children's Oral Cavity health erudition, execution and point of view and preventive executions is of great importance **(Paglia, Scaglioni, Torchia, et al., 2018).**

Health tuition is the transmission of erudition and skills that are necessary for the improvement of life quality, it is an important role of school nurse. In addition, thegoal of planned health tuition programs is to not only bring about new behaviors butalso maintain and reinforce healthy behaviors that will improve individual and community health **(Rechmann, et al., 2019).**

The nurse plays a critical role in providing information, support, understanding and therapeutic counseling to the pediatric patient and family. The nursing management must be provided in order to avoid the complications of the disease and stresses of dealing with dental problems. Nursing management includes nursing assessment, diagnosis, planning, implementation and evaluation. The most important reason for treating dental problems is to minimize the causes through educating the parents. Assessment of exact cause is very essential through history, clinical examination and necessary investigations **(Cleveland, et al., 2018)**.

Significance of the study

States that affect oral cavity health in children are very common due to many factors related to the role of the caregivers and the self-care of children. States that affect oral cavity health may effect on the children's milky and permanent fang as well which may leads to other health issues (**Raftopoulos et al., 2019**).

In Egypt, with a population of 1184 million, children are 14.5 million. Constituting nearly one-fourth of the total population. 96% of them are enrolled at schools (**Megallaa., 2021**).

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Tooth decay is one of the most common chronic states of school age children. Untreated fang decay can cause pain and infections that may lead to issues with eating, speaking, playing, and learning. About 1 of 5 (20%) children aged 5 to 11 years have at least one untreated decayed fang, 1 of 7 (13%) adolescents aged 12 to 19 years have at least one untreated decayed fang, the percentage of children is twice as high for those from low-income families (25%) compared with children from higher-income households (11%) **(American Academy of Pediatrics., 2020).**

Dental care is an important for child's psychological and physical health, it effects on child shape and that may lead to issues in self-confidence. Physically the fang important for good digestion and help to avoid indigestion that led to issues in digestive system such as constipation. Families which totally understood in sense that in lower income families accessing dental health care is not as reachable as its for middle and higher class **(Descamps., 2019)**.

It is important to shed light on knowledge and practices among school age children about dental problems in relation with residence. (**Al Agili., 2020**).

Aim of the Study

The study amid to assess knowledge and practices among school age children about dental problems in relation with residence.

Research Design:

A descriptive study was utilized to conduct this study.

Research Setting:

This study carried out at two schools; the permission was made with the educational administration in the western southof Giza governorate. A list of rural and urban schools was taken. There was a total of 79 primary schools in the western region of Giza governorate, 33 rural schools and 46 urban schools. A simple random sample was performed, and one rural school and one urban school were selected. The rural school is El Shahid Amr Abdel Guyed primary school, with three buildings, each withfour floors and four classes per floor, along with two toilets, one computer room, one lab room, two teacher rooms, and a schoolmanager room. There are two classes in both fifth and sixth grades, with 55 students per class and a total of 110 students.

The urban school is Nasr Eldin School, with two buildings, each with four floors and five classes per floor, along with two toilets, one lab room, two computer rooms, one clinic room, three teacher rooms, and a school manager room. There are three classes in fifth grade and two classes in sixth grade, with 50 students per class and a total of 100 students.

Research Subject:

A purposive sample of the school age children affiliated at the rural school El Shahid Amr Abdel Guyed primary schoolfor students aged 10-12 years old. A class was selected randomly from each grade, and there were 55 students in each class, witha total of 110 students in the two classes, and in the urban school Nasr Eldin School for students aged 10-11 years old, and two classes in the sixth primary grade, for students aged 11-12 years old. A class was selected randomly from each grade, and there were 50 students in each class, with a total of 100 students in the two classes.

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Tools for data collection:

First Tool: Interviewing Questionnaire Sheet:

This tool was designed by the researcher in an Arabic language after reviewing the related literature to gather data in relation to the following parts:

- **Part I:** Characteristics of studied children and their families include name, age, gender, residence, educational level of children and attendance of previous educational sessions related to dental care, parent's education, parent's occupation, and number of family members.
- **Part II:** Studied children medical history that include presence of dental problems, types of dental problems, duration of dental problems, dental follow up and regularity of follow up.
- **Part III:** Children' knowledge regarding to dental problems as definition, causes or predisposing factor, clinical manifestations, types of dental problems, complications, periodically follow up, type of diet, methods of prevention from complications and care of teeth.

Scoring System:

According to the responses obtained from the studied children, a scoring system was followed to assess children' knowledge, each question scored two (2) for correct answer and each question score one (1) for incomplete answer, and each question score zero (0) for incorrect answer. Children knowledge total score were 40 scores for twenty questions then the total graded were submitted and converted into percentage and categorized into good knowledge for children who scored ≥75% and more, average knowledge for children who scored 50% to less <75% and poor knowledge for children scored less than <50 % oftotal scores.

Second Tool: Children's Reported Practice:

To assess the actual children's reported practices regarding dental care. It included the following: Hand washing*: **(Mukherjee et al., 2021)***, Oral hygiene:(***Sharif., 2019),*** Cutting nails: ***(Wismaliya.,2020)*** and Tooth brushing: ***(Nitipong.,(2020).***

Scoring system:

Each step scored one (1) for done and each step scored zero (0) for not done. Children practices total score were 43 scores for four procedures, then the total grades were submitted and converted into percentage equal 100%. Then were classifiedinto, Adequate when children practices scored ≥75% and more, Inadequate practices when children practice less than<75% of total score.

Content Validity & Reliability:

Content validity was tested through a panel of 3 experts from faculty of nursing, Helwan University to ensure its validityfor comprehensiveness, accuracy clarity and relevance. The necessary modifications were done accordingly. The reliability tested statistically.

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Pilot Study:

A pilot study was carried out on 21 children (10 %) from the studied children in previously mentioned settings to test the applicability, feasibility, practicability, relevance, and clarity of the tools used and to determine the needed time for the application of the study tools. The children who were included in the pilot study were included to the sample because no modification was done after conducting pilot study.

Ethical Considerations:

Approval from the Nursing Ethical Committee of Scientific Research in Faculty of Nursing-Helwan University was obtained. Verbal Consent was obtained from each child who accepts to participate in the study. Every child has the right to withdraw from the study at any time and without giving any reasons. The studied children assured that the collected data would be treated confidentially and that it would be used for the purpose of the study only. The purpose of the study was simply explained to the children who agree to participate in the study prior to data collection. The researcher assured maintaining anonymity and confidentiality of the subject data.

Field Work:

The researcher conducted interviews with the children prior to collecting data for the study. An explanation was provided about the study's purpose, and the children were assured of the anonymity and confidentiality of their answers. Each child was interviewed individually, with the questionnaire taking about 20-30 minutes and the actual reported practices checklist taking about 15 minutes. Data collection took place from November 2020 to May 2021, with the researcher attending the study settings fortwo days a week (Sunday and Tuesday) from 9:00 am to 2:00 pm for six months.

Statistical Design:

Data collected from the studied sample was revised, coded, and entered using PC. Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 20. Data were presented using descriptive statistics in the form of frequencies and percentages and measured standard deviations for quantitative variables. Chi-square test (X^2) was used for comparison and r. test for correlation between quantitative variables. Statistically significant was considered at p.value ≤ 0.05.

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Result:

Part (I): Studied sample knowledge about dental problems.

Table (1): Distribution children's total levels of knowledge regarding dental problemsrelated to residence. (n = 210)

	Rural School		Urban School		Total		P. value
	No	%	No	%	No	%	
Knowledge among School Age Children about Dental Problems							
Poor	**107**	**97.3**	**47**	**47.0**	**154**	**73.3**	
Average	3	2.7	39	39.0	42	20.0	<0.001**
Good	0	0.0	14	14.0	14	6.7	
Mean±SD	9.26±2.86		13.55±6.49		11.3±5.37		<0.001**

Chi square test for qualitative data between the two groups
Independent T-test quantitative data between the two groups
**Significant level at P value < 0.05, ** highly Significant level at P value < 0.01*

Figure (1): Distribution of the studied children level of knowledge related to residence. (n= 210)

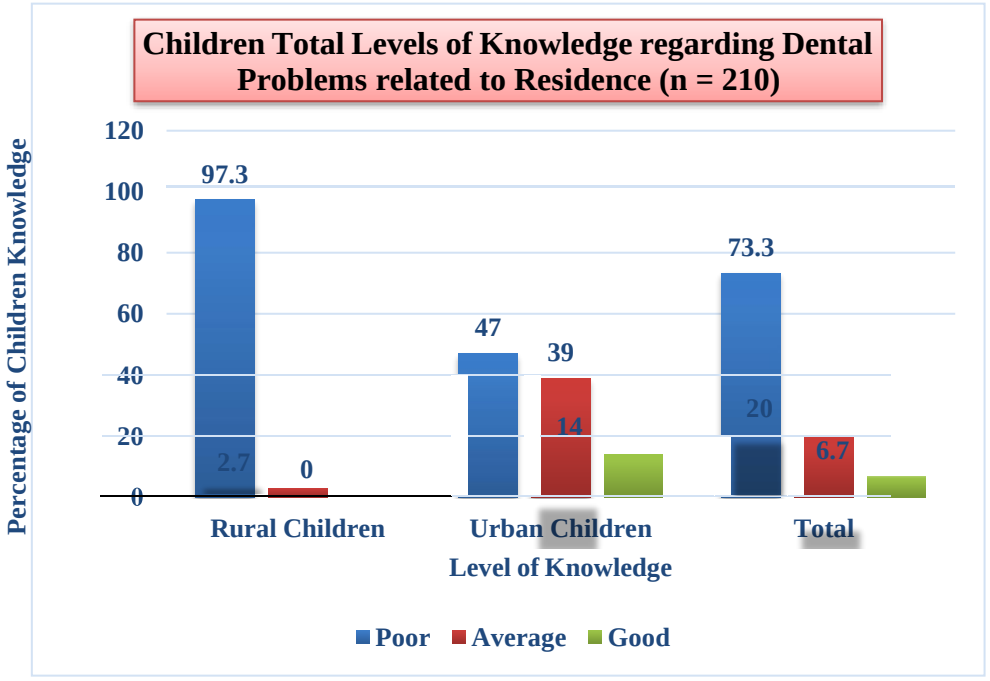

Table (1) and Figure (1) Clarified that less than three quarters (73.3%) of all studied children had poor total level of knowledge regarding dental problems.

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Table (2): Distribution of total level of studied children's reported practices regarding to dental care related to residence. (n = 210)

Total Children's Practice	Rural School		Urban School		Total		P. value
	No	%	No	%	No	%	
Children's Practice regarding to Dental Care							
Inadequate	**76**	**69.1**	21	21.0	97	46.2	<0.001**
Adequate	34	30.9	**79**	**79.0**	**113**	**53.8**	
Mean±SD	24.32±6.02		31.88±4.7		27.92±6.61		<0.001**

Chi square test for qualitative data between the two groups or more
Independent T-test quantitative data between the two groups
**Significant level at P value < 0.05, ** highly Significant level at P value < 0.01*

Figure (2): Distribution of the children's total level of reported practices related to residence. (n = 210)

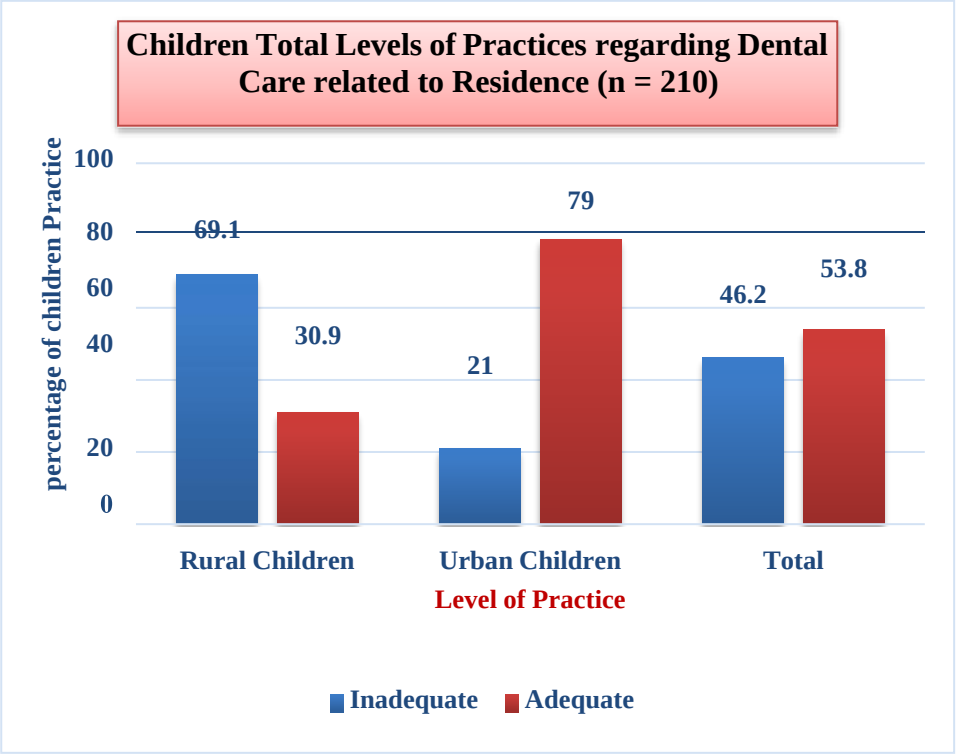

Table (2) and Figure (2) It clarified that about more than half (53.8%) of all studied children had adequate reported practice regarding dental care.

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Part (II): Relation and correlation between study variables:

Table (3): Relation between children's knowledge regarding dental problems with theircharacteristics. (n = 210)

Items	Knowledge among School Age Children about Dental Problems			
	Rural School		Urban School	
	No	Mean±SD	No	Mean±SD
Age Group:				
10 < 11	65	9.36±3.17	59	11.57±7.05
11 ≤ 12	45	9.11±2.35	41	16.39±4.27
P. value		**0.643**		<0.001**
Gender:				
Male	69	9.75±2.84	50	13.3±6.3
Female	41	8.44±2.72	50	13.8±6.72
P. value		0.019*		0.702
School Attendance:				
Irregular	21	9.52±2.73	40	12.95±6.52
Regular	89	9.2±2.9	60	13.95±6.49
P. value		0.645		0.453
Attending Previous Sessions about Dental Care:				
Yes	12	11.5±2.75	20	15.15±7
No	98	8.99±2.76	80	13.15±6.34
P. value		0.004**		0.219
Fathers' Job:				
Farmer	43	9.26±3		0±0
Skilled worker	43	8.79±2.63	30	8.4±4.74
Employee	24	10.13±2.89	70	15.76±5.87
P. value		0.187		<0.001**
Mothers' Job:				
Housewife	102	9.12±2.85	13	6.38±2.81
Working	8	11.13±2.3	87	14.62±6.2
P. value		0.055		<0.001**
Family Size:				
<4	13	10.23±2.39	83	14.92±6.06
5-6	50	8.6±2.83	15	7.33±3.92
7±	47	9.7±2.9	2	3.5±2.12
P. value		0.070		<0.001**
Fathers' Education				
Illiterate	76	8.75±2.72	5	6±2.74
Basic/ Secondary	29	10±2.85	15	8.13±2.97
University	5	12.8±1.48	80	15.04±6.28
P. value		0.002**		<0.001**
Mothers' Education:				
Illiterate	83	8.81±2.78	7	5.29±3.04
Basic/ Secondary	25	10.48±2.69	25	6.28±2.21
University	2	13±0	68	17.07±4.49
P. value		0.006**		<0.001**

Independent T-test quantitative data between the two groups
One-way Anova T-test quantitative data between the two groups
**Significant level at P value < 0.05, ** highly Significant level at P value < 0.01*

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Table (3) Demonstrated that, there was highly statistically significant relation between level of knowledge of children in rural school about dental problems and fathers' and mothers' education at ($P < 0.001$). Also, there were statistically significant difference with their gender ($P < 0.05$). Also, attending Previous Sessions about Dental Care represented a statistically significant difference. In addition, there was statistically significant relation between level of knowledge of childrenin urban school about dental problems and age, fathers' and mothers' job, family size and fathers' and mothers' education at ($P < 0.001$).

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Table (4): Relation between children's reported practices regarding dental care with theircharacteristics. (n = 210)

Children's Practices	Children's Practice Regarding to Dental Care			
	Rural School		Urban School	
	No	Mean±SD	No	Mean±SD
Age group:				
10 < 11	65	24.69±6.29	59	30.49±4.46
11 ≤ 12	45	23.78±5.63	41	33.88±4.34
P. value		**0.436**		**<0.001****
Gender:				
Male	69	25.93±6.21	50	31.76±4.84
Female	41	21.61±4.61	50	32±4.61
P. value		**<0.001****		0.800
School attendance:				
Irregular	21	24.86±4.65	40	31.78±4.94
Regular	89	24.19±6.32	60	31.95±4.58
P. value		0.650		0.856
Attending Previous Sessions about Dental Care:				
Yes	12	32±3.88	20	31.9±4.83
No	98	23.38±5.55	80	31.88±4.7
P. value		**<0.001****		0.983
Fathers' Job:				
Farmer	43	23.56±5.71		0±0
Skilled worker	43	22.7±5.58	30	28.77±3.57
Employee	24	28.58±5.52	70	33.21±4.51
P. value		**<0.001****		<0.001**
Mothers' Job:				
Housewife	102	23.81±5.76	13	28.54±2.4
Working	8	30.75±5.85	87	32.38±4.77
P. value		**0.001****		0.005**
Family Size:				
<4	13	29.31±5.38	83	33.11±3.73
5-6	50	22.52±5.78	15	26±4.72
7±	47	24.85±5.66	2	25±1.41
P. value		**0.001****		<0.001**
Fathers' Education:				
Illiterate	76	22.39±5.39	5	24.2±4.87
Basic/ Secondary	29	27.59±4.76	15	27.73±2.12
University	5	34.6±2.3	80	33.14±4.14
P. value		**<0.001****		<0.001**
Mothers' Education:				
Illiterate	83	22.98±5.54	7	24.29±3.82
Basic/ Secondary	25	27.8±5.35	25	27.64±2.71
University	2	36.5±0.71	68	34.22±3.24
P. value		<0.001**		<0.001**

Independent T-test quantitative data between the two groups
One-way Anova T-test quantitative data between the two groups
**Significant level at P value < 0.05, ** highly Significant level at P value < 0.01*

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Table (4) demonstrated that, there was statistically significant difference between level of reported practice of the children in rural school about dental problems and gender, fathers' and mothers' job, family size and fathers' and mothers' education at (P < 0.001). Also, attending Previous Sessions about dental care represented a highly statistically significant difference. In addition, there was highly statistically significant difference between level of reported practice of children in urban school about dental problems and age, fathers' and mothers' job, family size and fathers' and mothers' education at (P < 0.001).

Figure (3): Correlation between school age children knowledge and their practice regarding to dental care related to residence. (n = 210)

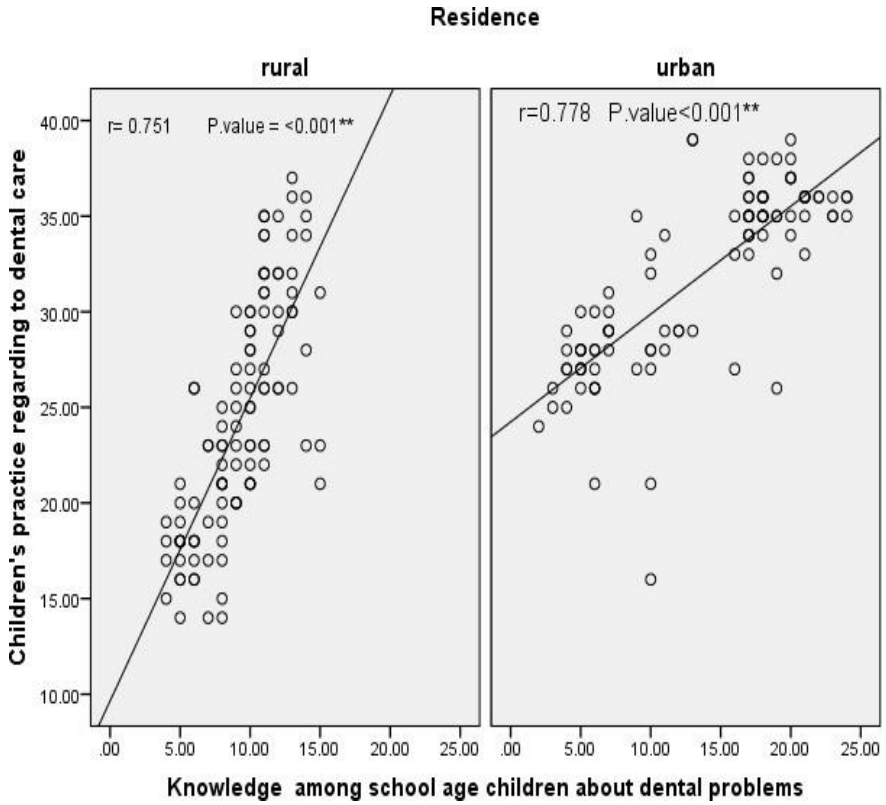

Figure (5) showed that there was a strong positive correlation between school age children knowledge and their practice regarding to dental care (<0.001**).

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Discussion

Oral Cavity health is an essential part of daily living, and it is an integral p art of systemic health. The jaws reflect a child's health and wellbeing throughout life. Oral illnesses affect general health and wellbeing throughout life **(Alhareky, & Nazir, 2021)**. Oral Cavity health erudition is considered as an essential prerequisite for health -related behavior and better Oral Cavity health is associated with grow erudition **(Alwabari.,2021).**

The current research highlighted that children who experience oral health issues possess limited understanding of different types of dental problems, their symptoms, diagnostic methods, and potential complications, all of which have a negative impact on their overall well-being and quality of life. This lack of knowledge extends to aspects such as the avoidance of certain foods and the appropriate frequency for teeth cleaning. **Koposova et al. (2019)** and **Malden et al. (2018)** have documented that oral health problems significantly diminish children's quality of life, leading to notable impairments in physical, mental, and social functioning.

Concerning total level of knowledge about dental problems that affect oral health, it was observed that about two thirds of all studied children had poor total level of knowledge regarding dental problems, meanwhile the majority of studied rural children had poor total level of knowledge regarding dental problems. In addition, less than half of the studied urban children had poor total level of knowledge regarding dental problems. This result in same line with study by **Ahmed etal., (2019)** in rural areas in Assuit, Egypt who found that the level of oral health knowledge is inadequate, amid the surveyed children waslow. This result may be due to poor health literacy and income amid studied sample from rural areas.

Regarding dental care, a study conducted on a sample in rural areas compared to urban areas showed consistent findings with a study by **Ogunbodede et al. (2018)** titled "Oral Cavity Health Inequalities between Rural and Urban Populations of the African and Middle East Region." The study concluded that individuals from rural areas exhibit poorer oral cavity health care practices compared to those from urban areas. This outcome can be attributed to the lower education levels often found in rural areas, which are associated with lower levels of health literacy and limited utilization of healthcare services.

The results revealed highly statistically significant relation between age of the studied children with their total knowledge and total practices in urban residence, the result agreement with study by **Alkalashet al., (2020)** revealed on "Oral and Dental Sterility of Primary School Children at Banha district, Qalubia Governorate, Egypt" and proved that there statistically significant correlation between age of the studied with their total knowledge and total practices in urban. This result may be due to with grow age grow knowledge and level of tuition which effect on level knowledge and practices.However, the results disagree with study by **Abu-Elenen et al., (2018)** who conducted "Effect of an oral care educational program on the knowledge, practices and self-efficacy amid the age range of childrennormally attending school"and found that there were no significant differences between total knowledge and practices with age of children.

The current result displayed no statistically significant relation between gender of urban residence with total knowledge and total practices amid studied children. The finding in same line with the study by **Imran etal., (2018)** who conducted "knowledge and practices of oral cavity health amid higher secondary school students" and stated that no significant difference for knowledge and practices amid male and female students.

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The present study demonstrated that there is a statistically significant relation between total knowledge and total practices regarding dental care issues of the studied school children, the study in same line with study by **Mohamed et al., (2021)** who performed on 400 studied school children in Minia Governorate, Egypt and revealed that a positive correlation between participant children' knowledge, and practices.

Recommendation

- Implementing educational sessions for the children to emphasize importance of prevention oral health measures for all age groups of children in order to maintain dental health.
- Health education programs about healthy diet and practices of adequate oral hygiene.

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